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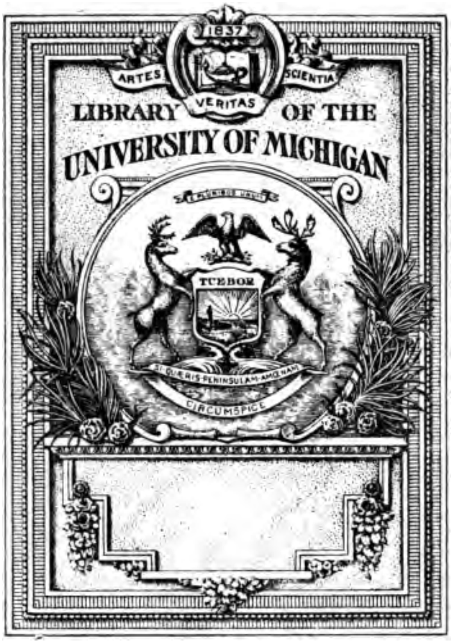

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THE

EDINBURGH MEDICAL AND SURGICAL JOURNAL:

EXHIBITING

A CONCISE VIEW

OF THE

LATEST AND MOST IMPORTANT DISCOVERIES

IN

MEDICINE, SURGERY, AND PHARMACY.

VOLUME TWENTY-SEVENTH.

1827.

UNIV. & BELL. HOSP. MEDICAL COLLEGE.
READING ROOM.

EDINBURGH:
PRINTED FOR ADAM BLACK, NORTH BRIDGE:
LONGMAN, REES, ORME, BROWN AND GREEN, LONDON: AND
JOHN CUMMING, AND HODGES AND MACARTHUR, DUBLIN.

1827.

THE

EDINBURGH
MEDICAL AND SURGICAL JOURNAL.

No. XC.

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A Lecture on the [illegible] of Knowledge [illegible] Macartney. [illegible] Surgery in the University of [illegible]

An Essay on Mental [illegible] proximate [illegible] bility, Mental Despondency, Hypochondriasis [illegible] fixed, Observations on the Diseases and [illegible] turn from [illegible] the Royal College of Physicians [illegible] George Underwood. [illegible]

The Edinburgh Journal of Medical Science. [illegible] tober 18[illegible].

The Medico-Chirurgical Review [illegible] and Surgeons [illegible] Series, No. [illegible]

Principles of Medical Science and Practice [illegible] By Hardwicke Shute, M.D. Physician to the [illegible] ter. [illegible] pp. 8vo. London, 18[illegible].

Laudatio in Memoriam [illegible] Medica Harveiana, [illegible] Pp. 66, [illegible], 18[illegible].

Die Verdauung nach Versuchen von Friedrich Tiedemann und Leopold Gmelin, Professoren an der Universität zu Heidelberg. Erster Band. Pp. 360, 4to. Heidelberg und Leipzig, 18[illegible].

Beobachtungen über die [illegible] Von John Lizars. Mit [illegible] nach den [illegible] Kupfertafeln. Aus dem Englischen. Folio, Weimar. 18[illegible]. This is a mere translation, but the plates are exceedingly well copied.

Principles of Dental Surgery, exhibiting a new method of treating the Diseases of the Teeth and Gums, especially calculated to promote their Health and Beauty; accompanied by a concise View of Dental Surgery, with occasional references to the more prominent works of the Art. In two parts. By Leonard Koecker, Doctor in Medicine and Surgeon [illegible] Pp. [illegible] 8vo. London, 18[illegible].

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On the treatment of Diffuse Cellular Inflammation, Burns, and other acute Inflammations of the Extremities by Compressing Bandages. By M. A. Velpeau, - - - - 219

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Communications have been received from Drs MONCRIEFF, ALEXANDER, W. F. BOW, HOWISON, A. B. S. A. ARNOLD, BARLOW, CUMMING; and Messrs TOPHAM, TURNBULL, R. W. SCOTT, MITCHELL, and S. BROWN.

The following Publications have been received :—

A Lecture on the Uses of Anatomy and Physiology, in various branches of Knowledge; delivered on Monday, 1st November 1824, by James Macartney, M. D. F. R. S. F. L. S. M. R. I. A. Professor of Anatomy and Surgery in the University of Dublin. 8 pp. 8vo. Dublin, 1826.

An Essay on Morbid Sensibility of the Stomach and Bowels, as the proximate Cause or characteristic condition of Indigestion, Nervous Irritability, Mental Despondency, Hypochondriasis, &c. &c. To which are prefixed, Observations on the Diseases and Regimen of Invalids, on their return from hot and unhealthy Climates. By James Johnson, M. D.; of the Royal College of Physicians, &c. London, printed for Thomas and George Underwood, 32, Fleet Street, 1827.

The Edinburgh Journal of Medical Science, No. iv. Edinburgh, October 1826.

The Medico-Chirurgical Review, conducted by associated Physicians and Surgeons, and superintended by James Johnson, M. D. &c. (New Series.) No. x. October 1826. London.

Principles of Medical Science and Practice, Part 2, Vol. ii. Pathology. By Hardwicke Shute, M. D. Physician to the General Infirmary, Gloucester. 604 pp. 8vo. London, 1826.

Laudatio in Memoriam Henrici Callisenii, habita in Societate Regia Medica Havniensi, die xviii Februarii, Anno MDCCCXXV., a Rahlff M. Dre. Pp. 66, Havniæ, 1825.

Die Verdauung nach Versuchen; von Friedrich Tiedemann und Leopold Gmelin, Professoren an der Universität zu Heidelberg. Erster Band. Pp. 380, 4to. Heidelberg und Leipzig, 1826.

Beobachtungen über die Extirpation krankhafter Ovarien. Von John Lizars. Mit funf nach den natur colorirten Kupfertafeln. Aus dem Englischen. Folio, Weimar, 1826. This is a mere translation; but the plates are exceedingly well copied.

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Directions for Drinking the Cheltenham Waters; with a Selection of Cases, illustrating their effects in a great variety of Diseases. By James M'Cabe, M. D. Author of "Observations on the Cheltenham Waters," &c. &c. Cheltenham, printed for G. A. Williams, Librarian; Longman and Co., and Whittakers, London.

Remarks on a Recent Effort to Subvert the Charter of the Royal College of Surgeons; with Animadversions on the evil tendency of the Lancet, and Observations respectfully addressed to general Practitioners, on the best means of maintaining their Privileges and Respectability. By William Cooke, Member of the R. C. of Surgeons, Secretary to the Hunterian Society, Editor of an Abridgment of Morgagni, &c. London, published by Thomas and George Underwood, 32, Fleet Street, 1826.

A Comparative View of the more Intimate Nature of Fever: deduced from Physiological Analysis, and Illustrated by Critical Remarks and Practical Observations. By James Black, M. D. S. R. N. and Member of the Royal College of Physicians of London. London, printed for Longman, Rees, and Co. 1826.

An Essay on Cupping, &c. &c. By Charles Kennedy, Surgeon, London. Printed for the Author. Published by Jackson, Medical Bookseller, 7, King Street, Southwark, 1826.

Manual of Pathology; containing the Symptoms, Diagnosis, and Morbid Characters of Diseases; together with an Exposition of the different Methods of Examination applicable to affections of the Head, Chest, and Abdomen. By L. Martinet, D. M. P. Resident Physician of the Hotel Dieu. Translated, with Notes and Additions, by Jones Quain, A. B. Demonstrator of Anatomy at the Medical School, Aldersgate Street. London, printed for John Anderson, 40, West Smithfield. 1826.

Dr Forbes has in the Press, and nearly ready for Publication, A TRANSLATION of the SECOND EDITION of LAENNEC'S TREATISE on DISEASES of the CHEST, with Notes, and a Memoir of the Author's Life, by the Translator.

In the Press, A Concise Historical View of Galvanism, with Observations on its Chemical Properties, and medical efficacy in Chronic Diseases. By M. La Beaume, Medical Surgeon, Electrician, F. L. S. &c.

NOTE *from Mr Liston.*

Mr Liston requests us to correct a mistake into which he had fallen in regard to the first of his cases of Aneurism. It was stated that the disease was seated in the *right*, whereas it should have been the *left*, thigh. Mr Liston had not seen the patient for a considerable time, when he applied on the 15th November with aneurism *high in the right ham*, and the following day (16th) Mr Liston applied a ligature on the femoral. The ligature came away on the 8th curt., and the patient, we understand, is doing well.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. JANUARY 1827.

PART I.

ORIGINAL COMMUNICATIONS.

Art. I.—*Surgical Cases.* By Robert Liston, Esq. Surgeon, Lecturer on Surgery, &c.

1. Cases of Aneurism.

In the 62d and 64th Numbers of the Edinburgh Medical and Surgical Journal, I related several cases of aneurism, in which I tied successfully the principal arteries of the body. One of these was a case of aneurism of the axillary portion of the left brachial artery, in which the operation was undertaken at a time when, from the repeated failures experienced in London, Dublin, and Paris, it was decried; and when, from these circumstances, I could with difficulty prevail on any practitioner to witness its performance. Though such uniform success has not attended me in the following cases of the disease, yet as each has presented some circumstances worthy of remark, they are likely to prove even more interesting to the profession than the former. I shall therefore proceed to detail them without further preface.

Case I.

Peter Grant, aged 35, applied on the 1st of April 1823, complaining of pain in the right thigh and leg. He had shown himself many months previously on account of the same symptoms in a slighter degree, when, on examination, nothing remarkable was observed. A distinct tumour, of a considerable size, and with all the characters of aneurism, was now perceived on the inside of the thigh, a few inches above the knee, where the artery perforates the tendon of the triceps. Next morning the superficial femoral artery was exposed at the point where the edge of the sartorius begins to cover it, and tied, as in my former operations, with a single silk ligature; the sheath was opened slightly with the point of the knife, and the vessel no further detached than sufficed for the passage of the thread. The patient did not lose as much blood as to soil my fingers, and he seemed to suffer very little from the operation, which was done as he lay in bed, and occupied not more than two or three minutes. Every thing went on favourably; the ligature separated; the wound healed; the tumour in a great measure disappeared; and the patient resumed his employment until the 25th of January following, when he was alarmed by a return of the pulsation and tumour. On consulting with Dr Thomson, it was agreed to try the effect of methodical bandaging, from the points of the toes upwards, and a compress over the tumour, with rest, cold applications, and moderate diet, before having recourse to a farther operation. These means had happily the desired effect. The pulsation and tumour, produced no doubt by the great strength of the new circulation, subsided gradually, and at length entirely disappeared; nor has the patient had any threatening of return. His limb is now fully as useful as ever; nor does he complain much of those pains which so frequently are left after the operation for aneurism.

These pains are in general distinctly referable to the sacro-ischiatic nerve and its branches, and are very satisfactorily explained by attending to the state of the vessels in the substance of the nerve. In the natural state, the neurilemal vessels, when injected, are not larger than sewing threads; but when the enlargement of the collateral branches is requisite, owing to obstruction of the trunk, they also are called on to contribute their share in the new circulation; and I have repeatedly seen them enormously distended. In one very remarkable specimen, in which the limb was injected and examined fifteen years after the superficial femoral had been secured for aneurism in the ham, the vessels in the sacro-ischiatic nerve had attained the size of crow quills, and were convoluted in a very remarkable way. Yet the pains in the limb, which I have mentioned as occurring after the operation, by no means equal in severity those experienced previously, and which are referable to the pressure upon, or stretching of the nerves by the sac. These pains cease in a great measure, in some cases entirely and immediately, on the circulation being weakened or arrested in the trunk, and give place to those I have first alluded to.

CASE II.

Mr M'K., aged 40, was seized with intense pain in the back of the left leg, in walking along the road, two months previous to my being called to see him, and so suddenly, that he supposed he had been struck by a pebble. He had since then been almost constantly confined to bed with severe pain, which he had supposed to be rheumatic. On examining the ham a pretty large aneurism was discovered. The nature of the disease, and of the operation which was required for its cure, was explained to him. He had endured, and was still suffering so much pain —was so much emaciated by it and want of sleep, that he insisted upon having the artery tied without delay. This was done on the 25th of January 1824, in the same manner as in the last mentioned case, and the usual cautions were given after the operation as to the keeping up the natural temperature of the limb, &c.; they were repeated by myself and assistants at our visits. All went on very well until the 30th, when I found the patient complaining of violent pain in the calf of the leg, and in the instep. This was, if possible, still more severe on the succeeding day, when the toes began to look very pale, and felt cold.

Next morning, February 1st, phlyctenæ had appeared on the foot and leg, whilst dark streaks could be observed running up the thigh. The limb was now cold, and in a great measure insensible; the patient's countenance was anxious and contracted; he was bathed in perspiration, with a weak, frequent, and fluttering pulse. It was evident that, unless some decided step were taken, the patient must perish, long before Nature could make any effort in his behalf. I drove home for my amputating instruments, and removed the thigh immediately below the deligated portion of artery. A good many vessels required ligatures, yet the patient lost very little blood; of course no tourniquet was used. Mr M'K. had rather a tedious recovery, though the wound and stump did well. He was attacked, amongst other maladies, with internal inflammation of one eye; abscess formed above the ball; and though every measure was had recourse to that Drs Anderson, Keith, or myself could think of, the eye sunk and became useless. The gangrene of the limb was caused by the employment of fomentations with hot salt water, which the patient's wife, notwithstanding strict injunctions to the contrary, had most assiduously employed. Having witnessed their good effects in other pains, she had thought them likely to remove the pain of the limb, consequent upon the establishment of the new circulation. But the pains rather getting worse, the fomentations were used hotter, and more frequently, until the circulation was excited beyond what the limb had power to bear. Even after coldness of the toes occurred, attempts were made by the fomentations to bring back the heat, until the vitality of the whole member was destroyed. The return of pulsation in the first case which I have narrated, and the supervention of gangrene in this on *the very same day*, contributed somewhat to render me less sanguine than I was wont to be as to the result of aneurismal cases.

CASE III.

J. M'P. aged 19, applied to me on the 28th of July 1825, on account of aneurism of the left radial artery, about the middle of the fore-arm, produced by the wound of a small chisel, some weeks previously. The tumour was as large as a walnut, and so compressible, that it could easily be made to disappear entirely. I therefore determined, in the first instance, to try the effect of graduated compress, with proper bandaging. The plan succeeded very well for about eight days; when the tumour, which had diminished considerably, became much more active; and a slight excoriation had appeared on the thin cicatrix by the wetting of the bandage and compress. The humeral artery was tied on the 8th of August, and with the effect of completely removing the tumour. On the eighteenth day after, a small slough, which had taken place at the excoriated part from the weakened circulation of the limb, separated, and a few very small clots of blood came away in the discharge. Next morning, about three o'clock, I was sent for hurriedly on account of violent hemorrhage. I then found it necessary, on account of the exhaustion of the patient, to take active means to put a permanent stop to the discharge of blood; and with imperfect light, and the assistance of only one professional gentleman, Dr M'Farlane, who happened to reside in the house at the time, I cut down through the sac by a very free incision. The radial artery was then dissected upon, and tied above and below the part originally wounded. Both wounds healed kindly; the ligatures came away without accident; and the patient regained the perfect use of his arm.

CASE IV.

John M'Intyre, aged 43, travelled from 150 miles in the Highlands, and on his arrival on the 12th of September 1826, presented himself to me with a very large pulsating aneurismal tumour in the right axilla. It seemed to pass upwards underneath the clavicle, which it had raised considerably, and downwards to below the border of the axilla, pressing in the ribs and flattening the chest. The projection of the tumour under the larger pectoral muscle was of immense size; and I do not exaggerate when I compare it to a common-sized foot-ball. The limb was enormously swollen, the upper part hard, the lower part soft and œdematous, as was also the side of the chest. The pulse was imperceptible at the wrist. The patient had lost the power of motion and sensation of the limb, yet the temperature was natural. About Christmas 1825, he had fallen on the ice with his arm stretched out, and to that accident he attributes the violent pains he experienced. They were at first supposed to be rheumatic; and it was only about ten weeks before setting off for this city, that, on application to Dr Smith of Kingousich, he was made aware of the nature of the tumour, which shortly before that he had observed in his arm-pit. The patient was allowed a day's rest; and, in the meanwhile, proper accommodation having been provided for him, the operation of tying the subclavian artery was proceeded to on the 14th. Dr Monro, Dr Sanders, Dr Malcolm of Perth, and several other professional gentlemen, did me the honour of attending. Mr Mackenzie gave me his able assistance; and to him and Dr S. I cannot sufficiently express my obligations, not only for the great solicitude and attention they bestowed in this case, but also in many others, after capital operations had been performed.

A cautious dissection was made upon the artery, in which the anastomosing vessels, as well as the venous branches, were preserved with much care. The edges of the artery, which was observed to be much enlarged, being sufficiently exposed, a blunt needle was conveyed under it from below towards the hand; but upon withdrawing the instrument, and the thread being hooked up, a good deal of blood was thrown out with considerable force. This, however, was restrained by the application of the finger, and soon stopped entirely. The ligature was then tightened, and with the effect of arresting the pulsation in the tumour. I was not satisfied, however, with this ligature, apprehending a return of the bleeding, which at the time I supposed had proceeded from some branch, perhaps not of a large size, which had been pushed off close to the trunk by the action of the needle. By dividing the transverse artery of the neck, and the posterior belly of the omo-hyoid muscle, I made more room, and exposed the artery again about three-fourths of an inch nearer the heart, and close to the edge of the anterior scalenus muscle. The artery was here if possible still more dilated, thick, and soft in its coats, and aptly enough compared to the finger of a buckskin glove; it was observed to rise very abruptly forward, after emerging from the edge of the muscle. I did not consider myself justified in going nearer the heart, considering the state of parts, and contented myself with passing a pretty thick ligature round the vessel, close to the edge of the muscle. The edges of the wound were then brought together by a stitch or two, and the patient, who had not suffered much, was put to bed with a good pulse, and in good spirits.

Every thing went on well for some days. The heat of the limb never rose much above the natural standard;—the tumour began to collapse;—the sensation of the arm to the elbow returned;—slight pulsation could be felt in the radial artery, and the patient was relieved of the violent pain he had previously suffered. On the fifth evening after the operation, a good deal of excitement took place. The pulse, which had not risen above 90, beat 120, full and strong, and accompanied with an increase of pain in the tumour and arm. Eight ounces of blood were taken from the arm, and an anodyne afterwards exhibited with great relief. Excepting the occasional exhibition of a laxative, no other remedies were had recourse to. On the morning of the thirteenth day, Dr Sanders, who was so kind as to attend the patient during my indisposition, was sent for on account of slight oozing from the wound. In the evening a little more blood escaped, with great relief of the pain and throbbing at the root of the neck, which had all along been considerable, but which for some days had been remarked to be very violent. The tumour also collapsed a good deal after the escape of the blood. Next morning (the fourteenth from the operation) a slight oozing of very dark and putrid blood again took place, and in the evening recurred to a considerable extent. It was arrested by compress, &c. but the patient did not again rally.

The EXAMINATION OF THE BODY was very satisfactory and interesting. The tumour, though diminished to nearly half its original size, was of tremendous extent. It not only still displaced the pectoral muscles very much, occupying the whole axilla; but, compressed a little by the clavicle, passed up to the edge of the *scalenus*, having the artery stretched over it.

The vessel had given way, at the time of the fall on the ice, it is supposed, immediately below the giving off of the *thoracica humeraria*, and from that point to the edge of the scalenus it was firmly attached to, and incorporated with the tumour, and in fact contributed to the formation of its coats. The wound, the adhesions of which were a good deal broken up, was filled with coagula; and the upper, or second ligature, was found detached, embracing a slough, and lying loose among them. The first or under ligature was still attached, though ulceration had occurred here also to a considerable extent. This ligature lay in the sac behind the subclavian, and from this perforation had proceeded the hemorrhage, which occurred on withdrawing the needle until the opening in the sac had in all probability been plugged up by coagulum. At neither of the points of deligation was there much appearance of attempt at reparation. There was no clot in the artery, except at the upper opening, which was soft and bloody, and though the vessel was a good deal contracted, the adhesions were slight; the axillary vein also necessarily passed over the inner part of the sac, adhering firmly to it, and obliterated about three inches below the clavicle.

The tumour extended in a curious manner downwards in the substance of the biceps muscle to the bend of the arm; the size of this process, which had probably been produced by the sac bursting into the sheath of the arm, was very considerable, being about two inches in diameter. Below the tumour the humeral artery was discovered emerging, of a very small size, and completely filled by a firm coagulum; the anastomosing vessels were all much enlarged, as might have been expected; the aorta and arteria anonyma were also dilated to fully double their original size, and their coats were pulpy and much increased in thickness; the lungs adhered firmly on both sides to the costal pleura.

On reviewing the circumstances of the preceding case, I am perfectly satisfied that the fatal result is to be attributed to the unfavourable alteration in the coats of the arteries, and to the great size which, from its long duration, the tumour had attained. For though the patient or his friends did not observe any swelling in the axilla until within a short period before his setting out for this city, with the view of submitting to the operation, there can be very little doubt that all his sufferings in the limb, from the beginning of the year, were occasioned by its presence. I have uniformly observed, in examining cases of aneurism of the limbs, that the arteries which, owing to the obstruction presented to the flow of blood, had been called upon to exert themselves unnaturally, were unusually strengthened in their coats; that the middle (I should say *muscular*) coat is always much strengthened, and its fibres very distinct and red. The principle upon which this occurs must be obvious enough; the fact is incontrovertible.

I confess I have my doubts as to Mr James Wardrop's case of ligature of the carotid beyond an aneurismal tumour, about which so much has been said of late in various publications. I should think it would puzzle Mr W. and those who put faith in the efficacy of deligation beyond the sac, to say what effect would have been produced on this aneurism, by including the contracted and obstructed humeral artery in a ligature.

A sketch of the parts by a very eminent artist, who was present at the operation, is annexed, which will give a more correct notion of the relative position of the vessels, &c. to the aneurismal sac than any description. The preparation remains in my private collection, which is open to the profession.

EXPLANATION OF THE PLATE.

The parts are represented nearly of their natural size.

A. The aorta,

B. The arteria anonyma, both much dilated.

C. The ligature which was first applied to the subclavian, still attached to the artery and to the aneurismal sac.

D. The subclavian artery where it was covered by the *scalenus anticus*, considerably contracted. Beyond the letter D is represented an ulcerated opening. Betwixt the letter K and D is the point at which the second ligature had been applied. K is on the portion of vessel intermediate to the two points of deligation.

L. The inferior angle of the scapula.

M. The axillary plexus of nerves.

E. The sawn end of the clavicle.

F. The coracoid process of the scapula, with the fibres of the pectoralis minor radiating over the tumour.

G. The aneurismal sac, much diminished in size, even after its removal from the body, owing to the escape of blood during maceration for eight or ten days previous to the drawing being made.

H. The part of the tumour which passed under the clavicle. This portion of the sac was much extenuated, and filled with fluid blood. Betwixt the letter H and G is observed a depression, formed by the bone. Originally this process of the tumour extended to D.

I. The divided end of that process of the sac which passed down to the bend of the arm. The contents of this part were also fluid.

O. The *thoracica humeraria.* At this point the rupture of the coats of the artery had taken place; and from this place to the letter K it is firmly adherent to, and involved in, the aneurismal sac.

N. The axillary vein, nearly obliterated, and firmly incorporated with the sac. The inferior part of the tumour conceals the vessels and nerves on the inside of the arm.

Art. II.—*Case of Diffuse Inflammation, with great Constitutional Disorder, from application of Morbid Matter in Dissection.* By J. H. James, Esq. Surgeon, Exeter.

THE following case may possess some interest, and, for the reasons mentioned in the sequel, I have thought its insertion in a periodical work might be proper. If such should be your opinion, I will beg you to give it a place in your valuable Journal.

On the 11th October 1821, I assisted at the examination of a man who had for a considerable time been a patient of the Devon and Exeter Hospital, under the care of Dr Collins, for profuse diabetes, with increased vascular action. He was bled two or three times, and after the last bleeding, erysipelatous inflammation occurred around the puncture, and in a few days he died, probably from the addition of this to the original disease.

Being anxious to learn the state of the vein, I attended the examination, which took place on the second day, I think, after death. It is not my purpose to state at length the appearances observed. It is sufficient to say, that a coagulum firmly closed up the orifice of the vein; that it was not inflamed; and that from the integuments, which had been the seat of erysipelas, a quantity of dirty-looking dark brown serum escaped.

For the purpose of examination, a portion of the vein, two or three inches in length, was removed, and stretched across the nail of the middle finger of my left hand to inspect it more narrowly. I was not aware at the time of any breach of surface in my hand, nor indeed if I had should I have felt the slightest uneasiness, as I had for many years been much in the habit of making examinations after death, without any apprehension or inconvenience.

This was about noon of the 11th. On the 12th in the evening, I went to London on business by the coach. I was then perfectly well, and in high spirits. I was so when we reached Wincanton about twelve at night, when we took tea. Soon afterwards, I felt a painful sensation about the left biceps, as if I had strained my arm; and before we reached Andover, the pain became sufficiently inconvenient to cause me to look at it. As soon as I reached that place, I perceived two red streaks over the biceps, marking the course of inflamed absorbents. The arm, elsewhere, was of its natural colour, and did not then appear swollen. My attention was now called to my hand, and on the middle finger I found a nail-spring surrounded with inflammation. Of this I had taken no previous notice, although I now recollected that, in the course of the night, I had felt it sore. I made a good breakfast at this place, which I mention to show that as yet the general system was little affected.

In the course of the day I found myself getting exceedingly unwell, and by the time we reached Bagshot, I felt such faintness and depression, that I thought I should not have been able to proceed, though aware, at the same time, of the extreme importance of reaching London, to be under the immediate and constant attention of those conversant with such cases. Here, from the feeling of exhaustion, I swallowed some wine and water, but immediately rejected it. I also tried to get down a morsel of toasted bread, but was unable to do so. These circumstances it is necessary to state, to show what the degree of constitutional sympathy was at this time. I now most fortunately discovered a kind and valuable friend in one of the passengers, of whose profession I was till then unaware, but who proved to be Mr Moore of Queen Street, Lincoln's-Inn-Fields, a gentleman to whose active kindness I shall always feel myself greatly indebted. He procured some red lavender, which revived me a little, and applied a soft poultice on my arm, which by this time had begun to swell, and, after a while, got me into the coach again, which drove rapidly along. It would be impossible for me to describe the sensations I experienced during the remainder of this journey. I have felt the invasion of typhus, but the feelings I now underwent were far beyond. It was not the sympathy of the constitution produced by inflammatory disease, but it was extreme prostration of nervous energy, with great anxiety and restlessness. Retching continued at intervals, and fainting was only prevented by small doses of red lavender, frequently given me. At Hammersmith I found it quite impossible to go further, and Mr Moore very kindly consented to remain with me. The inn, however, was very noisy, and, after lying down some time, I was sufficiently refreshed to pursue my journey in a chaise, and Mr Moore kindly took me to his own house, and immediately placed me in a bed. By this time the swelling of my arm had much increased, and was rapidly proceeding, and before the morning of the 14th it was so enlarged, that I could not in the least raise it from the pillow. A general redness had likewise spread over it.

With respect to the sequel, I was of course incapable of taking any notes, and I can only state what my recollection enables me to do.

The whole upper arm continued extremely enlarged for two or three days, red and painful, though by no means intensely so; it was a sensation of burning heat, with great tenderness.

This inflammation subsided by degrees. Two glands in the axilla enlarged, and were painful for some days, but they likewise were resolved, and I may observe that there was no tenderness of any part beyond the axilla. Two abscesses formed in the course of the absorbent vessels, but at a subsequent period, namely after the diffuse inflammation had subsided. They were of a description which I should denominate *carbunculous*, having a livid tinge with phlyctenæ on the surface, and containing foul matter, and considerable sloughs of cellular substance. One was opened in about ten or twelve days, having given me excessive pain for twenty-four hours previously; the other, smaller and less painful, ulcerated two or three days afterwards. They long remained foul.

The fore-arm participated very slightly in this disease.

A pustule, or vesicle, formed at the situation of the nail-spring, and the ulceration which followed, was foul for a considerable time. Two other pustules formed at the same time in the under skin under the nails of two other fingers, where there was no breach of surface whatever.

With respect to the general symptoms, they gradually subsided. Of the degree of fever I cannot judge; but a state of great nervous irritability succeeded as that of prostration subsided, and I felt spasms about my back and trunk, which gave me at one time the apprehension of tetanus.

Mr Abernethy saw me a few hours after I reached London, and the treatment he recommended was calculated to relieve local and general irritation; frequent evaporating poultices; small doses of calomel and jalap to excite secretions from the alimentary canal, which were productive of great relief; and saline draughts in effervescence. I got so much better in a few days as to be able to leave my bed, and I then exchanged the kind attention of Mr Moore's house, for that which I had long before, and always have experienced in Mr Abernethy's. I soon was well enough to go a little way into the country, and in about a month returned to Exeter.

From the imperfect manner in which I am able to communicate this case, I have hitherto declined its publication, contenting myself with allusion to it in another place.* But some facts it affords, of which I have an indelible and fearful recollection, appear to me of importance since the publication of Mr Travers's work, as they militate in no small degree against the doctrine he advocates; and perhaps they are of more consequence, since few, unhappily, who have been subjected to the influence of morbid poison in the way I was, have survived to relate what they felt.

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* Observations on Inflammation, &c. p. 200.

It appears to be Mr Travers's object, to show that the consequences of wounds or punctures in dissection are of two kinds: that in one there is trivial local irritation, at the point where the poison enters; that it is taken up and carried into the system with little disturbance *in transitu;* and that the local inflammations, often severe, which follow, are the result of its effect on the general system; while in the other the poison acts as a *local* irritant, exciting symptoms similar to those which sometimes arise from a simple irritation of any kind, as a puncture, scratch, &c. and the consideration of the *poison* acting on the system may be disregarded.*

The distinction seems a difficult one. There does not appear any reason why a poison should not at the same time produce a violent local impression as well as general; this certainly is the case with that of the viper, and similar reptiles, and it is highly probable it may be so in the class now under consideration. The local inflammation, it is true, *may* be the means which nature employs to resist the entrance of the poison, although *ineffectual,* as in the case of the viper; but it would not improbably lead to erroneous practice as well as theory, if it were concluded, that, because high local inflammation is found in the track the poison takes, consequently the system is protected from its influence.

In my own case, I may observe, that there was *great* local inflammation, the girth of the upper arm being, as I conceive, within twenty-four hours, at least double its natural size; and, with respect to the order of occurrence of the local and general symptoms, it will be seen that the first circumstance observed was inflammation of the absorbents;—the second, the concurrent increase of the local inflammation, and the remarkable effect of the poison on the system, indicated by retching, faintness, and depression; for I cannot persuade myself on the one hand, that the inflammation, as inflammation at this period, I mean before I reached town, was at all capable of producing *such* an impression on the general system as that I experienced; and, on the other, it would be a very difficult supposition to maintain, that this inflammation was the result of the "reflected" action of the poison on the constitution.

I am aware there may be those who doubt altogether the absorption of poison in such a case; but I am entitled to ask, why, of the thousand nail-springs I have had during my life, this alone produced such consequences? Why did vesicles form, not only on it, but under the nails of two other fingers?* And I may also ask, whether the subject from which I supposed myself to have derived this poison was not peculiarly calculated to furnish it?

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* This is the doctrine he advocates, if I rightly understand what he says, p. 211—222, and from p. 333 to 344. Simple punctures sometimes induce symptoms equal in severity to those induced by morbid poison; but I conceive it is not cases of this description which Mr Travers contemplates.

There are many other cases which have been cited by Mr Travers, as instances of simple irritation; such as Mr Clifton's, whose very interesting case is narrated by my friend Dr Gordon, and Dr Thompson's, which I believe to have been like my own, instances in which the poison attacked the individual *uno ictu*, locally as well as generally; and there is another, of a gentleman, whose name is not mentioned, p. 518, which is of a similar description as I believe, the phenomena of which Mr Travers explains by stating, that the specific action of the poison may succeed to the simple irritation, and suspend it. I think, however, it may with much more probability be considered a case where the local symptoms from the first, as well as the general, were the result of the influence of the poison.†

It is not my purpose to extend the present communication by any further remarks, excepting that, having myself been a sufferer, my attention has been a good deal called to the prevention of any similar accident in my own person, and the following simple plan seems to me to deserve notice:—

After an examination, and sometimes before, I have washed my hands with nitric acid and water, with the view of ascertaining, by the smarting produced, any points where the surface may be wounded or broken, which otherwise might escape observation. Before an examination, if these are touched with lunar caustic, it will prevent any absorption, and if any are discovered afterwards, they may be treated in the manner which is judged best. I should suck them strongly, and apply lunar caustic liberally.

Exeter, August 23d 1826.

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* Mr Travers considers vesicles "as the most convincing proof of poison," 277; and so I think does Dr Duncan.

† Among Dr Duncan's cases also, there are some which bear a considerable resemblance in many particulars to mine, particularly the 10th, (Mr Whitelaw's) the 11th (Mr Hercy's) and the 17th.

ART. III.—*A Case of Phlegmasia Dolens,* (Diffuse Inflammation of the Cellular Tissue.) By HUGH FRASER, Surgeon, Civil Hospital, Gibraltar. Communicated by Mr LIZARS.

7th January 1826.—A. M., 25 years of age, a stout good-looking woman, of fair complexion, and plethoric habit, has her left leg, from the toes upwards to the groin, swollen to twice its original size, particularly about the knee-joint; and it conveys to the touch an elastic, doughy, œdematous feel; but there is no serous infiltration, as the parts do not pit on pressure. The tumefaction also extends from the groin upwards, along the left side of the abdomen and thorax to the mammæ, and thence into the left axilla, along the arm of the same side, onwards to the elbow-joint. In short, the whole left side of the body corresponds with "Dr Duncan's description of diffuse cellular inflammation." The breasts are naturally very large; the left, devoid of all sensation, is black, and involved in absolute gangrene; but the sphacelus is not deeper than the boggy inflated integument, a line of demarcation being marked at the upper part. The right breast is hard, extremely painful, and around the areola there are three small sphacelated patches of skin with the separating line distinct. The sensibility of the leg and thigh is acute upon pressure or motion, but when left quiet the pain is moderate; there is no discoloration of the skin, but the temperature of the affected parts is higher than that of the sound.

The febrile symptoms are extreme, and of a typhoid type; there being great heat of surface; excessive thirst; pulse 140, and small; the tongue brown and dry as a board; the eyes sunk in their sockets; the aspect distressed, and general anxiety. She states, that eight days ago she was delivered of a female child without any untoward symptom whatever, and that almost immediately afterwards the leg became swollen and painful, first at the knee, where it remained stationary for a few days; and that it afterwards extended rapidly to the groin, abdomen, mammæ, and arms, until the tumefaction attained its present alarming state. She has used no medicine. Was admitted yesterday afternoon, when she had a dose of jalap, which has acted smartly. Warm opiate fomentations, with charcoal poultices to the breasts, have been applied; and two ounces of the following diaphoretic mixture were given every second hour.

℞. *Misturæ camphoræ,* ℥*ii. Liq. Ammon. Acetatis, Aq. Menthæ, āā* ℥*iii. Pulv. Nitri,* ʒ*i. Solve.* Opiate fomentations to be continued. Diet to be spoon-meat and potatoes. *Vespere, Haustus ex Tinct. Hyoscyami,* ʒ*i.*

8th January, 8 A. M.—Anodyne did not answer; her sleep was disturbed, and she is indeed very ill. Febrile symptoms are in full force, and obviously of the low congestive nature. Pulse 150, and tremulous. An extensive gangrenous patch was cut off the left breast, which gave *exit* to a quantity of sanious fluid, mixed with coagulated milk, and ropy matter.

Cont. mistura diaphoretica. Venæsectio ad. ℥xii. Fifty leeches to be applied to the thigh; fomentations and poultice to be continued; diet as yesterday, with two eggs.

9th January, 8 o'clock A. M.—Leeches caused a great flow of blood, and with good effect. Blood from the arm not buffed. Febrile symptoms, if not under remission, are moderated; sound sleep from one drachm of tincture of henbane, with half a drachm of laudanum at bed-time. Pulse 120, soft and more distinct; heat of surface moderate, with moisture; tongue has become swollen, and thickly beset with small aphthous vesicles, which extend down the fauces as low as can be seen; some have burst, leaving slight superficial ulcerations; thirst more moderate; aspect better; belly quite open; tumefaction of the extremity unaltered; but the lymphatic glands in the groin have become the size of walnuts, painful to the touch, and the course of the absorbents are particularly distinct on the inner side of the thigh.

Sloughs have separated from the breast. *Omitt. mist. diaphoretica.*—Forty leeches to the groin.

℞ *Vini Albi, Aquæ, āā. ℥vi. Acidi Muriatici, ʒss.* Three ounces to be taken every second hour. *Vespere, Sumat Haust. Anodyn.* Vinegar aspersion. Diet, spoon-meat, fowl, and eggs.

8 o'clock P. M.—No paroxysm of fever; comfortable all day, and relishes the mixture, which she has finished; leeches succeeded.

10th January, 8 o'clock A. M.—Has had four hours sound sleep, and she is upon the whole better; her tongue, however, is in a very bad state, the aphthæ having burst and coalesced,—forming a scabby-like incrustation, hard and dry as a board. Three alvine motions yesterday. *Sumat statim Olei Ricin. ℥i. Cont. Medicamenta ut heri.* Diet continued.

12th January, 8 o'clock A. M.—Her recovery has been progressive since last report, and the course is now decidedly favourable. Her aspect is nearly natural; but the tongue continues exceedingly dirty, although more moist, and seemingly disposed to clean. Heat of skin is also much reduced, but that of the thigh continues somewhat greater than the other parts of the body; tumefaction much the same, but it has not that tense elastic feel, being now more like that of œdema, and pressure leaves slight pitting; pain entirely gone; the left arm has, however, become highly sensible, and there is a phlegmonous hardening along the ulnar edge of the biceps muscle; the integuments of the left breast have entirely separated, leaving the gland cleanly dissected; right breast has healed; the nates are excoriated, which gives rise to much general distress, as she cannot be comfortably laid except on her back; a deep incision was made on the distal and tibial aspect of the thigh; but there is very trifling exudation or distillation.

Omitt. mistura. Cont. haustus anodyn. ℞ *Quininæ* ℈*i. Extract. Gentian.* ℈*ii. M. Divide in pilulas decem, quarum capiat ii. ter in die.* ℞ *Acet. Acetos.* ℥*vi. Aquæ* ℥*xii. Mellis* ℥*i. M. Fiat Gargarismus.* Diet, spoon-meat, wine, fowl, and eggs.

14th January.—Advances; but she had a febrile paroxysm of some force at two o'clock yesterday, which terminated about six o'clock in sweating; belly open; excoriation of buttocks extensive, and very distressing; tumefaction of extremity slowly subsiding.

Cont. pil. gargarismus et haustus anodyn. Vespere, Utatur lotione ad nates, ex decoct. Cinchon. ℥*x. Spirit. Ten.* ℥*iv. M.* Diet continued.

15th January.—State to-day less favourable; another hectic paroxysm attacked her yesterday at the same hour, and terminated in copious debilitating sweating. Symptoms manifest an extension of inflammation to the pleura, and there is a sharp fixed pain in the cardiac region, with difficult inspiration, and a dry husky cough. Pulse has risen from 100 to 120; belly open, and the tongue is much improved.

Omitt. Pilul. Fiat Venæsectio ad ℥*xii.* ℞ *Magnes. sulphatis,* ℥*ss. Liq. Antimon. Tartar,* ℥*i. Tinct. Digitalis,* ʒ*i. Aqua,* ℥*viii. M. Cujus sumat.* ℥*i. om. 2da hora.*

Vespere.—Ten ounces of blood were taken from the arm, which she thinks relieved her; it is not buffed; three stools to-d

Sumat haustus ex Tinct. Opii camphorat. ʒ*i.*
mon. Acetat. Aquæ āā. ℥*i. M.*

16th January.—Symptoms are so muc
the patient to be lost. The dyspnœa co
pain, which was relieved after the blee
before; cough unabated; pulse 130,
general anxiety, with sinking counten
derably diminished in size, but the sw
creases, and the axillary glands are en
the question, the powers of life bein

℞ *Balsam. Tolutan.* ʒ*ii. Sacch*
adde gradatim. Aq. ℥*viii. Tinct*
Scillæ āā ℥*i. M. Doses,* ʒ*ii. dysp*
alia. Diet as before, but without

17th January.—Pleuritic difficulty of breathing continued to increase yesterday; and death took place last night at eleven o'clock.

Sectio Cadaveris.—Externally.—Body not much emaciated. Left thigh and arm considerably larger than the right. Upon extirpating the mammary gland by an incision carried from it into the axilla, and down the arm, the gland was found to be quite purulent, partially detached from the muscle beneath, and in a sloughing condition. The fibres of the pectoral muscles were softened, and yielded easily to the probe. In their interstices there was effusion of coagulable lymph. Many of the axillary glands were also purulent, and the cellular substance of the arm was thickened with a yellow glutinous effusion, which, when cut into, gave out little or no distillation. The axillary artery, veins, and nerves, perfectly healthy, although imbedded amongst enlarged glands and coagulable effusion. The flexor and extensor muscles of the arm appeared all to be sound.

Abdomen.—Viscera all healthy, excepting the uterus, which was imperfectly contracted, being soft and flabby in its substance, of a very deep red colour, and as big as a large pine-apple. The marks of inflammatory action, indeed, were visibly pourtrayed upon this system of vessels. The ovaries, Fallopian tubes, and fimbriated extremities, particularly the latter, presented a highly florid appearance, with vessels of the size capable of holding arterial blood. The lining membrane of the vagina was also engorged with blood; but it was disputed whether this was actually the products of acute inflammatory congestion, or merely venous gravitation after death. On prosecuting the dissection, a chain of inflamed glands, from the size of a pea to that of a filbert, was seen extending from the distal point of th[illegible]ac artery, amidst the cellular [illegible] surrounding th[illegible] of the vessels, [illegible] [illegible]m, all a[illegible]t, and many purulent. [illegible] [illegible]ortion of artery also [illegible] [illegible] the artery, with [illegible] [illegible] *descendens*, were [illegible] [illegible]race of morbid action [illegible] ed. [illegible] now made ins[illegible] the [illegible] substance was [illegible] at [illegible]nd infiltrated [illegible] [illegible]lace. Inflam[illegible] [illegible]rted al[illegible] [illegible]space [illegible] and the diseased was remarkable. The lips of the vagina were much swollen.

Thorax.—Right *pleura pulmonalis* of a deep-red colour, with interspersed spots of coagulable lymph effused upon its surface, some of which were bridled to the *pleura costalis.* In the left cavity, the inflammatory products were more decided, both *pleuræ* being glued together with a false membranous-looking deposit. Vessels holding red blood were ramified upon the pericardium and mediastinum. Serous effusion, with flakes of coagulable lymph, existed in both cavities, and the pericardiac fluid was in increased quantity. The substance of the left lung was hepatised, cutting like liver. The right was sound. No tubercles existed. Upon cutting open the heart, and slitting up both the ascending and descending cavæ, they were found free from disease.

Remarks.—Notwithstanding all that has been written on the pathology of this disease, authors are still much divided in opinion with respect to the real primary seat of morbid action; and as anatomical investigation can alone determine this, and all other similar points, it is presumed that the case detailed will not be altogether void of interest. That it was a genuine example of the disease, cannot, I think, be questioned. Its treatment was conducted in the public wards of the hospital, before several medical gentlemen; and Dr Smith of the 23d regiment assisted me in the *post mortem* examination. It is an affection not unfrequent here, this being the fourth case that I have treated within the last fifteen months; but as that here related was the only one which proved fatal, no satisfactory conclusions can be deduced from the others.

Considering the numerous and various theories set forth by different writers, I think it obvious, from the history of the present case, as well as from the morbid appearances, that it bears a very strict analogy to the character given of it by Dr Hull, viz. that the disease consists in a "peculiar inflammation seated in the muscles, cellular membrane, and inferior surface of the skin." That venous inflammation had no part in the case of my patient, as lately maintained by Dr Davies, is sufficiently obvious. But it is not quite so clear what connection the absorbent system had. To me, however, it appears that this system of vessels became secondarily affected; for I can affirm, that no visible swelling of them took place till the 9th January, twelve days after attack. Now, it is reasonable to suppose, that, had they been primarily affected, they must have been observed to be so before this period, and the disease would probably have first arisen in the groin. On the contrary, she describes it to have commenced at the knee-joint, and to have extended upwards. Upon the whole, it appears probable, that "Phlegmasia Dolens" is, as Dr Duncan thinks, a modification "of Diffuse Cellular Inflammation," as described by that author. Since this acute practitioner directed the attention of the profession to the latter form of disease, cases are found to be of frequent occurrence; many of which have, by myself, in my military returns, for want of a better name, and in ignorance of the true nature of the affection, been classed under the head of Erysipelas and Phlegmon. Diffuse cellular inflammation, and phlegmasia dolens, will indeed be found to arise totally independent of morbid puncture, or the introduction of any morbid poison whatever, into the system, in the same way as many other diseases to which the human frame is liable, and for which no adequate causes can be assigned.

ART. IV.—*On the Employment of Digitalis in Epilepsy.*

By ROGER WAKEFIELD SCOTT, Liverpool.

JOHN GIFFORD applied for advice as an out-patient of the South Dispensary on the 12th January 1825.

He is about 9 years of age, rather tall and slender, with a fair florid complexion, and red hair. He has a peculiar wildness of expression, with slight strabismus of the right eye, but the pupil readily contracts on the application of light; his head is proportionally smaller than natural, and contracted, especially at the forehead; the left side of his body is weaker than the right; and though he knows his own name, and can answer a few simple questions, his mind is almost idiotic.

I collected the following particulars of the history of his complaint. He was a stout healthy child, with a remarkably small head, for a short time after birth; but his head soon began to enlarge. When he was 19 months old he was attacked with diarrhœa, which his grandmother attempted to check by giving him some wine and water; but in five minutes after he had swallowed it, he was suddenly seized with hemiplegia of the left side, and convulsions of the right, which continued without intermission from Wednesday till Saturday. He did not speak for twelve months after this time, nor regain the use of his left side for two years. His head continued to increase, and became very large, heavy, and broad across the forehead; the sutures were separated for two fingers'-breadth, and apparently distended by fluid; his faculties were much impaired; his urine was small in quantity, and of a dark colour. He was accustomed to drink freely of cold water; his appetite continued good throughout; and he had no repetition of the fit, but occasional twitchings.

He continued in this state till he was 5 years old, when he was attacked with fits of epilepsy, which came on to the number of ten or twelve, and sometimes twenty every day for four or five months; they were generally of five minutes duration, with intervals of one or two hours; he slept much after them, and was most liable to them during sleep, or between sleeping and waking. About this time also the strabismus occurred.

His mother at this period procured medical advice, and on the day of her application he had twenty-four fits. Medicine, however, was prescribed for him, which, in a short time, prevented the attacks, and they did not return for nine months, though the twitchings continued. The size of his head now began to diminish, without any perceptible increase in the quantity of urine; but the perspiration was considerable, especially about the head.

At the end of nine months the fits came on again, and he had four or five daily, though not so severe as before. After they had continued for a week or two, he again took medicine, which removed them for eight or nine months longer, when they recurred for the third time; and, during the four years previous to his application to me, he had never passed a day without them. He had usually six or seven, sometimes ten or twelve. They were generally preceded by twitchings, but sometimes came on without any indication. They were excited by the slightest causes, such as fear, anger, fatigue, crying, and even a current of fresh air blowing upon his face.

He has been under the care of several medical men. He has been cupped; had leeches and blisters applied; and taken a variety of medicines. I also tried several different means without any obvious advantage. He took nitrate of silver for a considerable time; ammoniated copper; arsenical liquor, and sulphate of quinine; he had also a course of mercury, and daily purgatives. Leeches and blisters were repeatedly applied; and an issue was established and kept open for two months. But, under applications of this nature, his mother thinks the fits were more frequent and severe.

I then prescribed the tincture of digitalis, in the dose of six minims three times a-day. In a short time the frequency and duration of the paroxysms were diminished; and, by gradually increasing the quantity to twelve drops, they altogether ceased; and he continued free from them for four months, though the twitchings did not entirely cease.

As the fits had not occurred for so long a time, I desired his mother to discontinue the medicine, and take him into the country, to allow him to run about freely; to pay attention to his diet, and the state of his bowels; and to administer a cold shower-bath every morning. His general health seemed to improve under this regimen, but the fits returned. Since that time he has been occasionally subject to them, but they are much milder than they formerly were, and do not occur, on the average, more than once in ten days.

His face becomes red before the attack, then purple, and afterwards pale; he generally sleeps, and sometimes perspires. His head is usually drawn to the left side, which is first stiff, and then convulsed. His right eye appears to sink in its socket, and his pulse is quick and irregular.

As his mother had observed that violent twitchings generally came on immediately before the accession of a paroxysm, or were much aggravated if they already existed, she was induced to administer the tincture at those times, as being more likely to prevent the attack, and she accordingly found that it was attended with that effect. Instead of giving him any definite daily quantity, she now regulates the dose, and time of its exhibition, according to the frequency and urgency of the twitchings; if the dose be sufficient, it scarcely ever fails to prevent the fit; and she attributes those to which he is occasionally subject to her not venturing to give it in a quantity sufficiently large to prevent them, which she feels persuaded it would otherwise do. Sometimes when the twitchings have been unusually severe, she has given him half a dessert-spoonful in a few minutes before they have ceased and that upon some occasions twice in the same day; but it is seldom requisite to exhibit it so largely.

Slight twitchings frequently occur, but do not create any uneasiness, as it is only when they are unusually violent that she is led to expect an attack, and her usual plan is, upon these occasions, to give him a tea-spoonful of the tincture at once.

On one occasion, not long after he commenced taking the digitalis, he got the bottle which contained it in the absence of his mother, and swallowed the whole of it, which might be about two or three drachms. It very soon produced the usual effects of an over-dose, vomiting, fainting, &c. which were removed by opium and brandy. He had two severe fits at the time, and his mother thinks that the amendment commenced from that period, but she has since been afraid of exhibiting it too largely.

If the twitchings are violent towards night, she observes that he has frequently an attack during sleep, or immediately upon awaking in the morning, and this she has found to be prevented by giving a tea-spoonful at bed-time. Those violent twitchings, also, which generally precede an attack, sometimes come on in the morning, when she likewise administers it with the same effect.

The digitalis has no other obvious effect than that of diminishing the velocity of the circulation, and removing the twitchings; his urine is not more copious than usual; his appetite is good, and his alvine evacuations are natural and regular; he has no dulness or drowsiness, but, on the contrary, is remarkably lively and boisterous; he sleeps well, and does not start; is quick in hearing; has no intolerance of light; and never complains of headach; he has no palpitations, except sometimes previous to a fit. His pulse is rather quick, except when under the influence of digitalis. He continues to grow, and his friends think that there is an evident improvement in his mental faculties.

December 23.—He has very seldom attended the Dispensary of late. His mother has been from home for some time, and he has been left under the charge of his grandmother, who, I find, has omitted the medicine altogether, or given it very sparingly and irregularly. He had a fit a few days ago, not very violent; he has had them more frequently lately, two or three in a day, once, and sometimes twice a-week. His appetite and general health are very good, and his pulse is about 80, regular and soft.

Capt. gtt. x. tincturæ digitalis ter quotidie.

Remarks.—In the case of Gifford, I was led to suppose, as well from his previous history, as the absence of disordered action in other parts, that the immediate cause of the disease existed within the cranium; but whether it arose from any structural change, or mere irritability, and the influence of habit, I could not decidedly judge. I therefore tried the effects of those medicines which are supposed to diminish irritability, to give tone to the system, and to alter the nature of the secretions. When these failed, I had recourse to the means more especially adapted to act on the encephalon, such as leeches, blisters, cupping, and an issue; but they appeared only to aggravate the complaint. I then resolved to use the digitalis, with the view of diminishing irritability and the force of the circulation, the sudden impetus of which to the head I conceived to be the cause of the attacks; and I must confess that its effects were much greater than I expected, from the failure of the depletory measures which I had previously adopted. I dare scarcely attempt to form any explanation in this case, as I am ignorant of the nature of any structural changes which may have taken place, and which are rendered more probable by the long continuance of the disease, the partial strabismus, and the idiotic state of mind which exist. Yet from the quickness of the pulse in general, except when under the influence of the digitalis, its acceleration previous to an attack, and the suffusion of the face which takes place, I conceive that over-excitement of the arterial system is a principal cause, the effect of which may be rendered more considerable by structural change, or peculiar irritability of the brain. From the frequency of its occurrence during sleep, and the state between sleeping and awaking, venous congestion, which is apt to take place at those periods, seems also to be another cause. By keeping the system under the influence of digitalis, the chance of over-excitement may be lessened; or, as in this case, by exhibiting it when the twitchings become violent, which appear to indicate the commencement of over-excitement, the paroxysm may be prevented or mitigated. If the paroxysms are occasioned by either of these states, it may be asked, why the depletory measures were not attended with better success? I can only answer this by the supposition, that the plethora does not altogether depend upon any permanent state of the circulation, but is chiefly owing to a temporary excitement, which may arise in an irritable habit, from the operation of causes so slight as to escape observation, combined with such a tension (or tightness) of the brain, as to render it more susceptible of their influence. If, however, blood were abstracted immediately upon the commencement of the excitement, it is probable that it might prevent the accession of a paroxysm; but this could not be often repeated, and when employed in the intermediate time, it cannot have the same effect, since the state which it is intended to remove does not exist; and venesection used abstractedly only tends to increase plethora and irritability. This will also hold good with regard to issues and blisters, which, however they might subdue a permanent plethora, will not have much influence over that which arises from temporary causes.

That the digitalis will be able to effect a permanent cure in this case, can scarcely be expected, as it is probable that some organic change has taken place. Yet it has been attended with such good effects, even in unfavourable circumstances, as to justify a more extensive trial of its power in this disease. It not only rendered the paroxysms less frequent and severe, but altogether prevented their occurrence for four months, though they had come on daily for four years previous to its employment; and it has also, for some time at least, furnished us with the means of generally preventing an attack.

In diseases which may arise from plethora of the vessels of the brain, or any temporary increase of excitement, whether produced by nervous irritation or not, I am persuaded that digitalis affords a valuable auxiliary remedy, which is highly deserving the attention of the profession; and I would recommend a more extensive trial of it in other intractable cases of spasmodic nature, such as hysteria, convulsions, tetanus, and analogous diseases.

What other remedies may be advantageously combined with it; how far it may be advisable to administer a considerable quantity at once, with the view of preventing a paroxysm, in cases where the indications of its approach are sufficiently long continued to admit of its exhibition; and how large a quantity may be safely employed, I leave to the experience of others to determine. Perhaps a much larger quantity may be given with impunity than has hitherto been attempted, since its power may be counteracted by the increased irritation and excitement, as the intoxicating effects of opium, alcohol, and other narcotics, are obviated by the existence of violent spasmodic action. *

Upon submitting these remarks to the perusal of my friend Dr Briggs, he referred to a case somewhat analogous, which had occurred during his Dispensary practice, and which strongly exemplifies the utility of digitalis, even in a small quantity, in a peculiar affection of the sensorium, accompanied with other marks of general irritability. The report with which he favoured me, I give in his own words.

" April 29, 1807.—Thomas Sutton, æt. 18, was reported as having gonorrhœa, but prevented from attending at the dispensary by palpitations and fits, for which I was desired to visit him. I found him with enormous palpitation of the heart and carotids, and a very bloated countenance, while the lower extremities appeared to be insufficiently nourished. On inquiry, the fits were not convulsions, but a sudden swimming in the head, during which he fell down, each fit lasting about four or five minutes; and in this manner he had continued to be attacked almost every hour for three years and a half. He was seized suddenly at first while walking in the street; had had the influenza severely, and was not recovered from it. His father was a tailor, and it was intended that he should follow the same occupation; but he was fit for very little. He sat almost constantly in bed, to prevent him being hurt by falling. Altogether he was a very miserable looking object.

I merely ordered one of the common digitalis pills of the Dispensary (one-fourth grain) to be taken four times a-day.

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* In the 20th volume of the London Medical Repository, No. 120, there is a paper by Mr Wansburgh of Fulham, on the employment of digitalis in pulmonary affections, in which cases are recorded where he ventured to exhibit it to an amazing extent. In acute pulmonary inflammation he frequently gave from 45 to 60 drops for a dose three times daily. Miss Clarke, æt. 9, of a delicate habit, took 120 gtts. in one day, and 900 gtts. in the course of twelve days, without any bad effect. He states, that there are certain inflammatory conditions which prevent the peculiar operation of digitalis, if venesection be not previously adopted.

I did not think it worth while to ask any questions about the gonorrhœa. On coming away, I remember remarking to my late friend Mr Griffith of Holyhead, who was then my clerk, that one would hardly suppose such an object to be in the way of catching such a complaint.

May 8th.—His mother came to inform me that he had been much better since he began with the pills; that he took four daily, and had had no fits for a week. The pain in the head continued.

15th.—Has walked from Crosbie Street to the Dispensary, (half a mile;) has not walked further than the top of his own street for three and a half years before; no fits; still vehement shooting pain of the head, with palpitation. The discharge from the urethra comes on with a gush, generally in the night, during sleep; it appears to be a seminal emission; he has never had any sexual intercourse in his life; has been using the injection of *sulph. zinci*, and every time of using it, he felt a thrilling sensation in the crown of his head. Nose generally very dry, but about once in three weeks has a copious limpid distillation for about two days; feels heavier while it is flowing; pulse 128, quite regular. His head has been very frequently blistered, but not within the last two years. Has taken great quantities of medicine, but not very lately; he had taken bark largely in the latter stages of the influenza. Never found any thing of so much service as the pills.

Capt. pil. vi. indies. Fiat VS. ad ʒviii. Ft. fontic. in nuchâ.

19.—Has been much affected with nausea since the 18th, which began three hours after the bleeding, and attributed to it; no vomiting; blood not buffy; palpitation still vehement; pulse 110, and regular; headach; face not so much flushed; takes but four pills daily. Issue not set till yesterday. Had an emission on the night of the 17th. It is always attended with a thrilling sensation of the second toe of the left foot, which continues for half an hour. Bowels habitually costive, but when he takes an aperient it operates in less than five minutes.

June 2d.—No sickness; no fits; pulse 86; palpitation still vehement; pain and heat of the head; issue healed; emissions almost every night; affection of the toe and bowels as before.

℞ *Sulph. magnes. ʒi. Aq. Menthæ pip. ʒviii. Capt. ℥i. quotidie. Continr. Digitalis.*

" June 9th.—No fits; pulse 80; pulsation of heart and carotids less vehement, and not increased by walking as before; headach still severe. The salt agrees very well, producing one evacuation without nausea, which every other medicine which he has taken occasioned. No emissions since the 2d, but that was attended with more exquisite pain.—*Pergt.*

23d.—No fits; still great heat and pain in the temples and crown of the head; one emission last week, less in quantity; has had a swelling and pain in the right instep, which is rather abated, but still painful.

℞ *Aq. puræ ℥vi. Tinct. Lavend. ℥ss. M. Ft. emb. capiti applicanda.*

July 14th.—Little or no complaint of the head; always better when taking the salt; uses the embrocation; pain of both insteps.

August 4th.—His mother came; he is gone to work; can walk better; inclined to costiveness.

September 15th.—Is able to walk every day, and without uneasiness. No pain in the feet; no emissions for three weeks; has not taken any medicine; head very well when the bowels are open, but generally costive when he does not take the salt. The embrocation always causes great pain and sickness; palpitation much abated; pulse 100, regular.—*Reptr. Mag. Sulph. necnon Digitalis.*

1808, March 15th.—Has continued free from fits and emissions; disposed to costiveness and headach; pulse 120.—*Reptr. med.*

April 19th.—By mistake, took a tea-cupful of solution of lead of unknown strength, about five hours ago, instead of the salt; soon discovered his error, and got it up by means of the infusion of chamomile; has had a motion since, and feels no uneasiness; has taken the salt and pills regularly; a severe pain over the bregma, which appears open; is able to work; palpitation very discernible, but not troublesome; pulse 108; frequent blotches on the temples.—*Appr. temp. hirud. vi.*

June 17th.—Pain at top of head, with external soreness continued; eyes rather bloodshot; pulse 84, nearly regular; has had emissions again almost every morning; has taken the digitalis, but they have been worse since.—*Emp. lyttæ nuchæ.*

28th.—Pain of head somewhat relieved by the blister, but still severe through the temples, with occasional eruption of pimples; still some seminal emissions; costive, though he takes the salt.

Habeat pilul. e Calomel gr. iii. No. vi. ℞ *Inf. Sennæ ℥viii. Pulv. Jalap. ʒij.*

1809, November 3d.—No emissions since he got the last medicines—did not take more in all than one bottle and a half; no fits; pulsation of the heart still vehement, but quite regular, always worst when lying down; is not much incommoded by it when walking or at work; pulse 112; no pain in the arms; sometimes he has a rumbling of wind in the bowels, and is relieved by passing it; sometimes a pain at top of the head, but generally free from any pain in the head; much beating in both ears when lying down; no pains in the limbs; has taken no medicine lately; was bled about three months ago, and felt better after it; no discharge from the nose now; always feels much worse on sitting down to work in the morning, after he has been drinking ale; he feels as if the seat were loose under him.—*VS. ad ℥xij. Repetr. Digitalis.*—It is not noted, but I remember his telling me, that he had the same feeling on a Monday morning, if he drank but a pint of ale with his comrades on the Saturday night."

From your own knowledge of Dispensary practice, you can make due allowance for the defective state of these notes. I may further add, that, during the whole course of my connection with public charities, I never met with anything like the indifference and thanklessness manifested by this patient, especially from the time that he was able to go to work. You will perceive, that, from that date, there was an immediate falling off, so that I saw him but six times afterwards in the course of more than two years. Between the two last reports, there is an interval of more than sixteen months; in the last of all, mention is made of rather a remarkable effect of ale; and, probably from consciousness that he neither had attended to my directions on this head, nor meant to do so, he chose to avoid me. I have some faint recollection that he once called upon me at my own house, after I had resigned my office at the Dispensary, which was not till more than a year afterwards; but, from that time, I have never seen or heard anything of him, nor do I know whether he is alive or dead.

Enough, however, appears to show the almost magical effect produced by a very small quantity of digitalis, two grains of which, taken in the course of two days, sufficed so entirely to remove the fits, or, as they were called, swimmings in the head, (from which he had seldom been an hour free for three years and a half, and which had almost incapacitated him for everything,) that he never had another so long as I knew him; and this must have been nearly four years. It should be remembered, however, that he continued to take the pills for some time, how long, or how regularly, it is impossible to say; but in the reports repeated mention is made of them, and, on the 19th April, at the end of nearly a year, he is stated to have "been taking the pills and salt regularly."—No mention is made of his condition during the night, only that he was subject to nocturnal emissions. As far as I recollect, his nights, even while he had the swimmings, were fully as tranquil as might be expected.

Though the use of digitalis was in this case followed with manifest benefit, yet I have met with no similar instance of the powers of this drug. The most prominent symptom when I first visited him was, the inordinate action of the heart and carotids; and it was the evidence of this as a primary affection, that led me to think of digitalis. But though I have since tried it repeatedly in less equivocal cases of affection of the heart, I cannot say that I have ever seen any decided good effect from it. But it by no means follows, that, because the practice answered so far beyond expectation, the theory was correct, and I now suspect that it was not.

In the mysterious circle which connects the functions of the sensorium with those of other viscera, and especially of the heart, whereby they act and react upon each other, it is not always practicable to distinguish what is primary and what is secondary. But, in the present case, the more I reflect on all the phenomena, the more I am inclined to believe that the cause of causes is to be referred to the former.

In the first place, it was upon the head, rather than on the heart, that the most immediate and striking effect of the digitalis was manifested, while ultimately the inordinate affection of the heart seemed to yield even more readily than the headach, just as might have been expected of a secondary compared with a primary affection.*

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* The effect of irritation within the cranium in deranging the functions of the stomach, is familiar to almost every practitioner who has had to do with incipient hydrocephalus, or a fractured skull, or even a severe blow on the head. But it may not perhaps be so generally known that tartar emetic may in such cases not only prove generally composing, but sit easier on the stomach than almost any other medicine. This is experienced in a case which occurred to my friend Mr Worthington and myself nearly seventeen years ago. A boy at 11 had been attacked with violent pain in the head and vomiting, about a week before I saw him. These symptoms had become less urgent, but he continued drowsy and impatient of light, with his eyelids somewhat swollen, calling out and muttering incoherently, but giving rational answers when spoken to; pulse 68; appetite craving. (This last symptom was once pointed out to me as characteristic of hydrocephalus. I had before that noticed it myself, and have since observed it repeatedly.) He had had a blow on the head with a brick a few weeks before, but had not complained of it after the first day or two. This, however, is nothing extraordinary. Perhaps blows on the head in children who are predisposed may be a more frequent exciting cause of hydrocephalus than is suspected. He was leeched and blistered; had large and repeated doses of calomel, scammony, &c. and it is remarkable that he never vomited after the powders; but the most urgent symptom was a general restlessness, particularly through the night, for which, on the fifth day of my attendance, I was induced to recommend *Infus. Sennæ* ℥*iv. Ant. Tart. gr. ij.* Take ℥*ss.* (*gr.* ¼) every two hours, and continue the powders. The effect was surprising; when I called at noon I found him sleeping calmly, and he had slept two hours; pulse 96; quite regular. He had taken three doses of the medicine, and it sat quite easy. From this time he continued to take a bottle, or *gr. ij.* per day, without its once making him in the least sick, till the ninth day, when he vomited three times, having taken the medicine each time about half-an-hour before; it was then suspended, but only for about a day. In the report for the 13th,

Again, though the heart and carotids were the parts principally affected, the symptoms of increased irritability were not confined to these. This may be inferred from the vertiginous sensations on sitting down to work on a Monday morning, occasioned by a moderate quantity of ale taken on the Saturday evening,—from the periodical gravedo,—the pain and sickness caused by the embrocation,—the peculiarly irritable state of the bowels when any purgative operated in less than five minutes,—but most of all from the seminal emissions, with the very singular affection of the toe, and also the thrilling sensation occasioned in the head by the injection. Such symptoms naturally bring to mind a fact mentioned more than once, that persons have been attacked with epilepsy during the act of coition; and, indeed, according to my present views, the wonder is, that this case did not terminate in epilepsy.

It may seem strange that cupping was never ordered; but cupping was at that time in very few hands in Liverpool; and, indeed, from the effect of eight ounces of blood taken from the arm, there was no great encouragement to take more. At any rate, the circumstance of so little blood having been abstracted, and none till after the fits had been cured, leaves less doubt as to the power of the digitalis.

But whatever analogy subsists between this case and yours, there is yet a very striking difference as to the dose, more even than as to the whole quantity taken. Though Sutton took a good deal from first to last, it was by the first two grains that the principal impression was made. In your case also, the effect of the first doses was particularly striking, all things considered; but in the one the dose was scarcely at all increased, and never materially; whereas in the other it was pushed to an extent that would lead one to doubt whether the tincture was well prepared."

Liverpool, Dec. 23, 1825.

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from his beginning to take it, I find it noted, "has nearly finished the eleventh bottle; is never sick after it." But here it was finally discontinued. His recovery was complete, but very slow; his head shook; he was impetuous, and cried often, with some appearance of fatuity; had phlegmons in his head and face; but these might perhaps be owing to the blisters, for they do sometimes occasion them even in parts quite distant. *Quere*, What would digitalis have done in this case? I was led to employ the tartrate of antimony from having about that time witnessed its tranquillizing power in furious mania; it was given in one-half-grain doses every hour, at the suggestion of the late Dr Brandreth; and in this way he took eight grains per day, without the least sickness for many days. Ultimately indeed it lost its effect; but at first it was surprising.

ART. V.—*Observations on the Endemic Fevers of Spain.* By T. Proudfoot, M. D. Kendal.

IT is worthy of remark, that the varieties of fever observed in Spain are more numerous than in most other countries. There the fevers of the northern and temperate parts of Europe are occasionally seen under particular circumstances, merging into these ardent, malignant, and ungovernable forms which characterize the worst description of fevers met with in tropical climates.

The following remarks apply more particularly to fever, as it occurs in that part of Spain lying along the Mediterranean shore. My object has been to state simply what I have observed, chiefly among the military, and sometimes also among the inhabitants; and to convey a notion of the manner in which these fevers, by imperceptible degrees, run into each other. I trust the observations may be found worthy of a place in your valuable Journal.

On the Spring Endemic Fever.

The months of February, March, April, and May, were generally the most healthy in the whole year, and noted particularly as producing the fewest cases of continued fever. Various reasons may be assigned for this, such as the moderate temperature of the atmosphere, and the comparative purity of the air, the noxious exhalations not yet having been called into existence, or at least general activity, from the heat of the sun. The soldiers having been well fed, clothed, quartered in towns and villages, and recovered from the fatigues of the previous campaign ; and their minds elated either by the prospect or actual commencement of another campaign, were less liable to become a prey to the usual causes of endemic fever. Nothing tends so much to ward off disease as the ardour, enthusiasm, and activity generally attendant on the opening of a campaign ; in a very few instances, when carried to excess, this may also prove the cause of fever.

The cases of fever that occurred about this period were generally of the catarrhal kind, arising from exposure to cold, and particularly, when combined with moisture, sudden alternations of temperature, fatigue, night duty, and intemperance ; in short, by any debilitating cause by which the body was rendered more liable to be acted on by cold, always the prominent exciting cause. This fever very frequently commenced with languor and lassitude, soon followed by cold shivering, headach, pain in the back and limbs, thirst, a white furred tongue, a strong, hard, sometimes wiry, and frequent pulse. Occasionally it made its approach as a common catarrh, with hoarseness, dryness of the nostrils, from suppressed mucous secretion; a dull obtuse pain in the forehead, pain and rigidity of the muscles of the neck, cough, pain or stitch in the side or breast, and difficult respiration. Sometimes the first symptoms were pain or stitch in the side or breast, cough, and difficult respiration, followed by headach, pain in the small of the back, general uneasiness, quick pulse, and other symptoms of pyrexia. The secretion of the skin was interrupted, and a pungent hot rough morbid sensation was communicated to the touch—the *calor mordax* of the older physicians. The bowels were generally costive, but, except under particular circumstances, were not prominently affected in this species of fever. In the more violent forms of the disease, when remedies could only be partially used, or when entirely omitted from urgent and unavoidable circumstances at the outset of the attack, the pectoral symptoms became more urgently marked; for, in whatever manner the fever began, danger was to be apprehended chiefly from this source. The patient began to expectorate mucus tinged with blood; occasionally hemorrhagy took place from the lungs. The carotid and temporal arteries beat violently; the headach also became more severe, accompanied with stupor, delirium, and an injected or suffused state of the vessels of the conjunctiva, more rarely with strabismus, twitchings of the muscles of the face, and a total neglect and unconcern about external circumstances. These symptoms occasionally continued for a day or two, sometimes longer. When the patient again began to turn his attention to objects of usual interest, the skin began to acquire a more natural temperature, and by degrees to become moist; the thirst, quick pulse, delirium, headach, and other symptoms gradually subsided; and a recovery of strength progressively, though in such cases slowly, took place. The accession of delirium sometimes seemed to relieve the affection of the chest; but that being relieved by remedial measures, the complaint in the chest sometimes returned, and disappeared only with the general febrile affection.

This fever seldom proved fatal, unless neglected at the beginning, as occasionally unavoidably happened when the army was on a march, then only a part of the curative process could be carried into effect, from want of proper accommodation, suitable diet and remedies. It was difficult to distinguish this disease from pneumonia in some instances, but the pain in the head, the back, and the limbs, was more violent than in an attack of pneumonia. The affection of the chest appeared most frequently as a sequence of the febrile affection, and was also less violent than in a genuine attack of pneumonia. Sometimes, too, though very seldom, the fever recommenced after the affection of the chest had been subdued, and ran a new, independent, and isolated course. Symptoms of pneumonia also occasionally appeared after the febrile symptoms had subsided. This fever differed likewise from pneumonia in other respects, in being attended with greater prostration of strength, and in being also less amenable to blood-letting; the disease was of a more insidious nature, and ran a more defined and protracted course; the pectoral symptoms in general, as already stated, were not so violent as in pneumonia. Early in March 1813, an opportunity was afforded of observing this kind of fever prevailing to some extent, by a movement of part of the British force, with a view to surprise the advance of the French army stationed at Alcoy.

A strong British regiment, with an Italian levy, &c. moved from their cantonments on the 5th of the month, and marched by a circuitous route to intercept the retreat of the French, while a considerable force marched on the following day, and bivouacked part of the night on a ridge of hills near Tibi, the first range on leaving the Mediterranean shore. The wind blew from the north-east, and the night was excessively cold. To all it was the first night of bivouack for the season; to many for the first time. A great proportion of this force had long served in the Mediterranean; and one corps (the 10th regiment) had crossed the desert from India to Egypt in 1800. After several days field-service of a very harassing nature, the army again got under cover; but there was soon a very considerable increase on the sick list. The effect of cold in producing disease in different constitutions, in men similarly clothed and fed, and in the middle period of life, was shown in a very striking manner. The most prevalent disease was the catarrhal fever here alluded to; the most unfavourable cases were what would have been reckoned *pneumonia typhodes* by some physicians. Stitch in the side, or diffuse pain in the chest, cough, difficult breathing, a rough dry skin, a hard constrictive pulse, costiveness, and, as the disease advanced, low muttering delirium, with an undefined anxious look, dingy hue, and hectic suffusion of countenance, were the prominent symptoms. In those lately arrived from England, cases of pneumonia were not unfrequent, and in hard drinkers, hepatitis was common. The Italians were also liable to catarrhal fever and pectoral complaints; but much more to attacks of ophthalmia than the British. The old soldiers of the 10th regiment, who had served in India, were also seized with the same kind of fever, and affection of the chest. But in them the disease was frequently accompanied with functional or organic derangement of the liver and spleen, and that again, in many instances, with inflammation and ulceration of the mucous membrane of the stomach and bowels, as evinced by symptoms of bilious diarrhœa, or dysentery, as well as by examination after death. In hard drinkers, and in worn-out constitutions, the abdominal viscera were always more affected than in those of sound constitution. In them, too, the fever more generally assumed a worse character. The reader need scarcely be reminded, that exposure to cold easterly winds, under such circumstances, is apt to bring on a fit of ague in all who have been exposed to marsh miasmata, and particularly in such as have suffered from former attacks of the disease.

It appears, then, that this febrile affection occurred at the same time with other diseases induced by cold, as catarrh, pneumonia, and rheumatic fever. In some instances, indeed, it was at first extremely difficult to determine whether the complaint was a case of catarrh, an inflammatory affection of the chest, or a case of continued or rheumatic fever. During the progress of the disease, however, something generally transpired to point out to which genus it ought to be referred. These diseases also seemed now and then to run into each other by imperceptible shades, and appeared under various degrees of intensity and combination, inconsistent with the plan of this paper to describe. The symptoms of pyrexia would occasionally come on, and continue for a few days, unaccompanied by local affection. These were followed, perhaps, by a complaint in the chest, indicated by cough, difficult breathing, and pain in the side, or extended all over the chest. This local affection would yield somewhat to blood-letting, which indeed could seldom be dispensed with; yet it was different from pneumonia, and declined with the fever. Sometimes, as already related, the pectoral complaint and febrile affection appeared to be synchronous, and observed the same unyielding law, with respect to blood-letting, running the usual somewhat definite course of the fever. In other instances, an apparently pure case of pneumonia, that yielded readily to the simple but powerful remedies of ablution of the surface of the body with warm water and soap, bleeding, blistering, a cathartic, nitre, and barley-water, would some time afterwards degenerate into a case of continued fever; while pure cases of pneumonia at the same time, and in the same ward of the hospital, rarely did so.

The morbid appearances observed in the cases that terminated fatally, were an inflamed state of the *pleura costalis* and *pleura pulmonalis*, sometimes with partial adhesions of these membranes, but more frequently with an effusion of lymph or serum into the chest. In a few instances the heart was found affected, and a similar effusion filled the pericardium; and sometimes there were both partial adhesion and effusion. The mucous membrane of the fauces, trachea, and bronchiæ was also very generally found in a vascular or subinflamed state, covered with patches of coagulable lymph. The parenchymatous substance of the lungs was not unfrequently loaded with blood, or in a state of congestion, as it has been termed. More rarely it was in a state of inflammation. The vessels of the encephalon generally exhibited some degree of excitement. The membranes were often crowded with turgid vessels; but the substance of the brain was very seldom found in an inflamed state at this time of the year;—occasionally gelatinous or serous effusions between the membranes, and in the ventricles of the brain, were observed. This vascular and excited state of the encephalon was never conspicuous, except when preceded by an inordinate determination of blood to the head, accompanied with coma and delirium, often referable to some peculiarity of constitution, such as an unusual degree of plethora, accompanied with a large head and short neck,—or when the fever was brought on by intemperance. In a few instances, in which no morbid appearances whatever could be detected in the chest, although the symptoms indicating such an occurrence had been prominent from the commencement to the termination of the fever, the affection of the lungs was then deemed functional, dependent on disturbed circulation, or disease in the brain. Difficult respiration often arises, too, from the rapid transmission of blood through the lungs, and from partial congestion, leaving no traces of previous disease after death.

The treatment of this fever was abundantly simple, and, under ordinary circumstances, almost always successful. Our usual method of proceeding was to order the patient into a warm bath; and when this could not be conveniently accomplished, the whole body was washed with warm water and soap. It does not appear necessary to enter into the medical effects of the warm bath at this place, particularly as I shall have occasion to allude to it as a remedy of great moment in a different species of fever, of a far less tractable nature. British soldiers, when compared with foreigners, are as remarkable for their appearance of cleanliness on parade as for their bravery in the field. But, unless in very well-disciplined corps, or when obliged to bathe by the direction, and under the guidance of their officers, which is sometimes the case in warm climates, it is generally expedient, for the sake of cleanliness and comfort, as well as for the successful operation of future remedies, to order purification by ablution with warm water and soap whenever a patient is admitted into hospital. Trifling as this may appear, I have oftener than once had to regret its omission.

If the general symptoms were at all urgent, or if there was prominent local affection in the chest, head, or elsewhere, blood was taken from the arm immediately, varying the quantity from one to three pounds, according to the violence of the symptoms. Twenty or twenty-four ounces, however, were very frequently quite sufficient to relieve the general uneasiness, and enable us to save the patient from more summary proceedings, till the bowels were freely opened by a brisk cathartic. The amelioration that took place after this was often astonishing, even in cases that, from the severity of symptoms on first examination, augured a very serious attack. The purgatives in common use, given in such doses and combinations as the particular circumstances of the case suggested, were found, from considerable experience, to be the most efficient in the cure of this species of fever, as well as in all acute diseases. Pretty full doses were generally given at the commencement, till the accumulated feces were completely discharged, and continued till the dejections assumed a more healthy appearance; for it rarely happens during the course of fever that we find the evacuations perfectly natural. Twenty grains of the powder of jalap, or rhubarb, with five or six grains of the submuriate of mercury, two scruples or a drachm of the compound powder of jalap, an ounce of any of the purgative neutral salts alone, or a smaller quantity combined with infusion of senna, or castor oil, as the particular condition of the case seemed to require, were the means in ordinary use; and sometimes such purgatives as necessity or convenience dictated were employed. On a march we were frequently obliged to give purgative pills, such as the Pil. Colocynth. Comp., the Pil. Gambog. Comp., the Pil. Aloes cum Myrrha, &c. A regimental surgeon of my acquaintance, of great experience, was very partial to tartar emetic as a remedy in this fever. From its small bulk it was easily carried; and he maintained, that, by the lancet and it, he could accomplish almost every thing that was to be expected from medicine, regulating the dose so that it might prove emetic, cathartic, sudorific, diaphoretic, or expectorant, as particular circumstances seemed to require. He occasionally also used it externally as an epispastic or irritant with much advantage. It is, however, sometimes a rough and uncertain medicine, and I never was very partial to its use.

The plan of treatment varied, of course, not only according to the peculiarities of the case, but likewise with regard to the contingent circumstances of being on march, in camp, or near an hospital, and also according to the time of day at which the patient applied for relief. If in the afternoon or evening, unless there seemed some particular reason for the immediate exhibition of purgatives, they were generally given in such doses as not to disturb the patient during the night. To answer this indication, two or three grains of submuriate of mercury, with an equal quantity of antimonial powder, given at bed-time, succeeded by a saline purge on the following morning, seldom failed after bleeding to break the force of the fever, and was a favourite mode of procedure. After the bowels had been freely opened during the day, nothing tended so eminently to relieve the symptoms as an anodyne in combination with some diaphoretic medicine, such as one grain of opium made into a pill, with two grains of calomel, and two of James's powder, or the extract of hyoscyamus or hemlock with the same, and with squill, or ipecacuanha, when the lungs were very seriously affected, and opium was supposed to check expectoration, or constipate and vitiate the secretion from the bowels. A solution of the nitrate of potass, or of acetate of ammonia, with tincture of hyoscyamus, or laudanum, or Dover's powder, with other remedies of this description, which it is quite unnecessary particularly to specify, appeared often to be eminently useful.

The human body is naturally subject to periodic movement, and manifestly intended for motion and rest, alternate expenditure and reaccumulation of power or energy. Of this principle advantage may often be taken in the cure of disease with great benefit to the patient. After the inordinate febrile action had been partly subdued by blood-letting or purging, or by both, by which the active powers of the system had been somewhat expended, a combination of the kind alluded to not only procured rest, but, by its anodyne, stimulant, and diaphoretic effects conjoined, quieted the nervous system, soothed for a time all the morbid feelings of the patient, relaxed the texture of the cutaneous surface, and restored its perspirable function,—a circumstance of incalculable importance, by relieving and taking off the blood from the internal and vital organs, and thereby tended to interrupt and subvert the morbid process set on foot by the fever. The ambiguous effect of opium at the commencement of fever has often been the subject of comment and remark; and it is not till after a certain preparation of the patient by partial restoration of the function of the bowels and skin, that we dare venture on its use. Before this opium seldom fails to constipate the bowels, increase the heat, thirst, and general febrile action, and, in place of quieting, generally aggravates all the feelings of uneasiness.

Anodyne remedies were therefore never employed except after previous preparation of the subject, and in combination with other medicines. Some purgative was generally repeated on the following morning, and blood-letting and blistering, if either the general febrile or pectoral symptoms seemed to require such measures. The *liquor ammon. acetat.*, a solution of the nitrate of potass, or some gentle diaphoretic, with low diet, and the aid of an aperient every morning, or every other morning, according to circumstances, were now very generally all that was necessary to bring the fever to a favourable termination. In some cases the fever was cut short by this treatment, and the patient was at his duty in a few days. In other instances, the fever seemed suspended by the bleeding for some time, and recommenced with or without the pectoral symptoms, but often without them, or any other local affection, apparently from the inflammatory diathesis having been removed by the patient having been bled, kept upon low diet, and shielded from the external atmosphere. In a majority of cases the patients were convalescent about the end of the first, or in the second, week from the commencement of the attack, and the fever was rarely protracted to the third week, when suitable remedies could be employed.

Hemorrhagy from the lungs was treated in the usual way, by bleeding according to the urgency of the symptoms; but it generally yielded to blistering, cold acidulated drinks, and digitalis. Sometimes we used superacetate of lead made into a pill, with some of the anodyne extracts.

There was a variety of this fever, which occurred chiefly in such as had undergone repeated courses of mercury, were of irregular habits, or who had resided long in warm climates. To the symptoms of pyrexia and pectoral affection were added soreness or pain in the abdomen, and sometimes nausea and vomiting, at first with irregular action in the bowels, which soon ended in diarrhœa. The dejections were sometimes mucous, slimy, bilious, or bloody. On dissection, the mucous membrane of the bowels, particularly the small intestines, was found of a dusky red mottled appearance, and sometimes small ulcers were observed, particularly near the termination of the ileum. Leeches, the warm bath, blisters, castor oil, or a solution of sulphate of magnesia, as purgatives in the morning, with a pill twice or thrice a-day, containing calomel, ipecacuanha, and a small quantity of opium, or the blue pill, with James's powder, were the remedies chiefly trusted to during the active stage of the complaint, and light tonics and astringents towards the termination. Small doses of sulphate of zinc, with camphor, were found very useful.

On the Summer Endemic Fever.

In every country fever is found to vary considerably, according to the season at which it may occur. In Spain fever varies not only according to the season of the year, but there is also considerable diversity in the fevers of any particular season of one year from that of another, often apparently referable to the indefinite commencement of either cold or hot weather, and particularly to combinations of cold or heat with moisture, and sometimes altogether unaccountable, as in case of epidemic influences. This observation is not peculiarly applicable to Spain. But from the frequency and violence of fever in that country, from the disproportionate cold of the winter and spring, when compared with the tropical heat of the summer and autumnal months,—the shades of fever are more prominently marked than in most other countries. No particular time can be specified, therefore, at which the vernal fever, accompanied with prominent affection in the chest, such as has already been described, can be said entirely to cease. It was most prevalent in February and March, gradually disappearing and merging into synocha, brain, inflammatory, or summer fever, in almost every subsequent attack, as the warm weather advanced in April and May. In these months the spring fever very generally disappeared, unless in those peculiarly predisposed to the local affection, with which it was usually accompanied; as, for instance, in tall delicate young men, of consumptive stock, with narrow ill-formed chests.

As to local affection, much also depended on the kind of services in which the soldiers were engaged, and particular periods of exposure. Thus, during the months of April and May, those on sentry, or piquet, or who had marched or bivouacked during the night, were most liable to have the catarrhal or spring fever, accompanied with pulmonary symptoms; while those attacked after exposure to the heat of the sun, at the same time of the year, when on similar services, or on drill for several hours, generally laboured under the brain or summer fevers. In May or June, then, according to the heat of the weather, and other adventitious circumstances, the character of the fever had generally changed. The first and mildest form of this inflammatory fever differed little from a smart attack of fever occurring in the heat of summer in this country, except that the invasion was more sudden, and convalescence even more rapid, than after an attack of synocha in Britain. The neutralizing effects of the temperature of the months of April and May frequently diminished the number of febrile cases; but, as the hot weather came on, the increase was sometimes astonishingly great. This often arose from the great number of individuals exposed at the same time to the immediate exciting causes,—such as insolation, violent exercise, and intoxication.

The invasion of this fever was generally sudden, and the symptoms violent from the onset. Languor and lassitude, at once unaccountable, were soon followed by violent shivering, alternating rapidly with flushings of heat, and severe pain in the head, back, and loins. The flushings of heat quickly settled into an intensely hot, burning, arid, and constricted state of the surface of the body, accompanied with a white furred tongue, unquenchable thirst, nausea, and vomiting, at first of the contents of the stomach, then of bilious matter, and a strong, hard, and frequent pulse. In other instances, the fever began with violent headach, unaccompanied with any very perceptible cold stage, but rapidly followed by the other symptoms, though not always in the same train of succession.

But, in whatever way the fever commenced, the violence and rapidity of succession of the symptoms, with the constant and invariable affection of the brain, were always the prominent and characteristic features of this disease. As the fever advanced, the symptoms became more violent; the pain, at first perhaps confined to the bottom of the eyes and forehead, became more diffuse, intense, and deeply seated; sometimes, too, it was compared by the patient as if arising from an iron hoop bound tightly round the head; flushing of the countenance became also more manifest, accompanied often with giddiness, dimness of sight, distension of the eye-balls, intolerance of light and sound, violent beating of the carotid and temporal arteries; no amelioration in the state of the skin; the tongue often became coated with a dirty-brown or black fur; and repeated and most distressing efforts to vomit took place. The bowels were generally not easily moved, and occasionally remained obstinately costive. Respiration, at first impeded, became slow, laborious, and then stertorous. The pulse, before strong and frequent, became weak, quick, and irregular. At length delirium, with trembling of the hands, dilatation of the pupils, and paralysis of the muscles of the eyes, occasioning strabismus, took place. The urine, secreted in small quantity, and high coloured from the commencement, had now generally become retained; and the patient expired in a comatose state, and sometimes in a fit of convulsion.

This fever occasionally proved fatal in a few days, sometimes on the second or third day, in spite of every effort that could be used to stem its violence; but generally the disease ran a temperate course, or, at least, was quickly and conspicuously amenable to the use of decisive remedies; and convalescence was usually rapid and complete, except when the fever seemed to terminate by effusion in the brain. When the more violent symptoms suddenly subsided, lingering convalescence, often accompanied with a certain degree of imbecility of mind, and weakness or paralysis of the lower extremities, appeared to denote this unfavourable termination. This is the seasoning fever to which all strangers from cold or temperate climates are peculiarly liable on their arrival in warm latitudes; and, unless its purely inflammatory character is vitiated by noxious exhalations from the soil, or by something adventitious, appears precisely similar, it is believed, in all tropical countries. Synocha is generally the fever produced by exposure to intense solar heat; but idiosyncrasy may, in various ways, change its symptoms, and frequently confers on them what is called a bilious character. But, if the individual is also acted on by noxious emanations from the surface of the earth, the character of the seasoning fever may be farther changed into intermittent, remittent, or concentrated continued yellow fever. By seasoning fever is usually understood an attack of yellow fever; but this notion is partly erroneous. If what I have stated is correct, it is only occasionally the seasoning fever.

In Spain, young men lately arrived from Britain, of the sanguine temperament, and in the very highest possible state of health, when seized with this fever showed it in its most exquisite form. Their liability to seizure appeared often augmented by the sudden change in diet, as well as by exposure to an unusual degree of atmospherical heat. It often happened that they arrived in Spain after having been only a few weeks in the service. As they had been accustomed at home to live chiefly on a comparatively unstimulating milk and farinaceous diet, when obliged to subsist principally on animal food without vegetables, after living entirely on salt meat and dry biscuit, and at the same time using bad wine, or *aguardiénte*,*—an ardent spirit of the country, they were more liable to suffer from other causes of disease.

When those accustomed to the climate and diet were seized with this fever, in them it could generally be traced to violent exercise under the powerful heat of the sun, or to intoxication. After a long and fatiguing march during the heat of the sun, and exposure to heavy dews during the following night, spent in bivouac, and perhaps with many an intemperate use of ardent spirit, it was not unusual, in a corps of eight hundred or a thousand men, to have fifteen or twenty fresh cases of fever for several successive days. Fortunately, however, as already stated, the treatment was not more simple, and generally efficacious, than the convalescence was rapid and complete.

The cases that terminated fatally, on examination almost invariably exhibited unequivocal signs of vascular excitement in the encephalon; even a fulness or puffiness was now and then observed in the integuments of the head, particularly along the course of the temporal arteries; and within the scull coagulable lymph was not unfrequently found along the tract of the medial meningeal artery. The superior longitudinal sinus, and veins leading into it, as well as all the vessels of the brain, were generally at least in a turgid, if not subinflamed, state. A serous or gelatinous fluid was often found to have been deposited between the *dura mater* and *tunica arachnoidea*, as also between the latter and the *pia mater*. The *tunica arachnoidea* often appeared of an opaline colour, opaque and thickened. The *pia mater* was not unfrequently crowded with turgid blood-vessels. Serum was generally found in unusual quantity in the ventricles of the brain. Portions of the substance of the brain were sometimes considered firmer than ordinary, but it exhibited very rarely any marks of disease, though, on making a transverse section of its hemispheres, a few more drops of blood oozed out than in those who died from disease, where no unusual determination of blood to the head had taken place. The vessels on the base of the brain frequently showed manifest signs of inflammation. I have seen death take place, however, preceded by unequivocal symptoms of determination of blood to the head, and attended by delirium and coma, when no morbid appearance whatever could be detected in any internal organ. It is not improbable that death took place from distension in such cases, which disappeared after death, from the position of the body, from general exhaustion, or from a state of the brain and nerves, not easily explained. Nevertheless, this was very unusual, and not without a suspicion of some latent deception: it occurred sometimes from want of experience on the part of the examinator doubtless, but much more frequently from want of sufficient attention. I have seen one skilled in morbid anatomy, too, neglect, at the commencement of the dissection, slighter relics of disease, which he afterwards seized upon with avidity, when nothing more tangible could be discovered. When the fever was produced by intemperance, or accompanied by nausea and inordinate efforts to vomit, the vessels on the mucous membrane of the stomach, particularly at the cardiac orifice, were found more numerous and distended than usual; the viscera of the abdomen and thorax were generally sound.

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* *Aguardiénte* (ardent water) signifies brandy; but those who have only seen French brandy would form a very erroneous notion of this deleterious spirit.

There is scarcely any acute disease where the resources of the healing art are more eminently and conspicuously shown than in this—not even in pneumonia; but there is no other febrile disease that so absolutely and imperiously requires that what is to be done should be done well, and quickly. So controllable is this species of fever, that it seemed as if all that was wanting to insure almost universal success were, that we possessed the convenience and power of carrying into effect the powerful resources of which our art enabled us to avail ourselves. It is not more lamentable than obvious, however, that the nature of military service in the field not unfrequently rendered this impossible; and although it is well known that the zeal of the medical officers generally could not be surpassed, and the deaths from this fever were comparatively few, yet, from causes altogether insurmountable, too many opportunities were afforded of ascertaining the effects of the fever by examination after death.*

The slighter cases of this fever yielded to cold affusion, the immediate exhibition of a purgative as soon as the patient applied for relief, which was repeated early every morning, so as to produce four or five motions. During the day saline or antimonial diaphoretics were given, aided, of course, by low diet and repose. Sometimes cold acidulated drinks and refrigerants were given during the heat of the day, and saline or antimonial diaphoretics at bed-time. But unless the medical attendant had an opportunity of strictly watching the progress of the complaint, almost from hour to hour, or was well assured of the comparative mildness of the attack, this was an unsafe mode of procedure. Blood-letting was therefore resorted to at once, in the majority of instances; and subsequent events generally proved not only the propriety, but the indispensable necessity of the measure. The quantity of blood drawn off, as in all acute diseases, was regulated by an estimation of the violence of the symptoms, and other fortuitous circumstances, applicable to the particular case, varying from sixteen or twenty ounces, in the moderate forms of the disease, to two or three pounds, in the graver and more severe. In some instances, I have taken upwards of three pounds, when the brain was deeply implicated, as evinced by delirium or coma; or, in cases of *coup de soleil*, which may be considered either as the highest degree of this fever, or as a particular kind of apoplexy, according to its severity, course, or progress, and termination. It was seldom that either blood-letting or cold affusion was required oftener than once or twice; but both means were repeated according to the exigencies of the case, their apparent eligibility, the obstinacy of the complaint, and the remaining powers of the system.

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* Take as an example of what was not unfrequently met with, the case of a young medical officer of great zeal, who had conducted many cases of this kind of fever to a favourable termination, and who had nearly fallen a victim to it himself, by a combination of fortuitous circumstances to which military life is particularly exposed. He rode in rear of the regiment to which he belonged during the whole day, exposed to the heat of the sun; (the temperature in the shade by Fahrenheit's thermometer, perhaps, upwards of ninety degrees;) and, after affording professional assistance to the sick, bivouacked during the night, exposed to heavy dews, and marched again on the following hot day. On the evening parade he was seized with violent headach and vomiting. He was bled, had the cold affusion and purgatives; his head was shaved and blistered; and in a few days he was convalescent. The army was about to retire, and the town was likely to be immediately occupied by the French. He was obliged, therefore, either to be removed, or run the chance of falling into the hands of the enemy. Contrary to the advice of his friends, he decided on being removed, and got a bed prepared in a covered waggon; but after travelling a few miles, such was the confusion during the retreat by the breaking down of commissariat carts, blocking up the road, and the intolerable jolting of the waggon, that he felt as if his head would split, and determined to mount his horse. He had not ridden a few minutes, when the horse on which his servant was riding took fright, cast the rider, and galloped across a rugged country. The owner was tempted to ride after his horse, and after having travelled about ten leagues (forty miles) he arrived in a town crowded with Spanish troops, separated from his servants, and almost unequal to any exertion. He was most kindly admitted into a house where he had once been quartered before. He became quite insensible, and lay nine days in this state under the guidance of the people of the house, and a faithful Italian servant. The weather was extremly hot, and the water brackish and unwholesome. In his delirium and reveries, his discourse turned on the events of the period; and the brackish water and intolerable thirst prompted him repeatedly to crave that the water might be brought from a spring in his native country.

The selection of the kind of purgative to be used seemed often a matter of considerable importance. At the commencement of the disease, those of the saline refrigerating kind obtained a decided preference. To a solution of the sulphate of magnesia, a small quantity of diluted sulphuric acid and conserve of roses was sometimes added, and appeared an eligible purgative; or, a solution of salts, with an infusion of senna or salts, tartar emetic, or the compound powder of jalap, as choice or convenience pointed out, apparently answered every purpose. But when the bowels remained obstinately costive, or had already been opened, and as much blood had been taken from the arm and temporal artery as appeared safe;—when the head had been shaved and blistered—the body immersed in a warm bath—and a stream of cold water poured on the head;—and the brain still remained deeply affected;—cathartics, calculated to make a greater impression on the alimentary canal, not only to empty the contents of the bowels, but to emulge or drain out the bile, the pancreatic, and enteric juices, promote the circulation of blood through the abdominal viscera, solicit a greater determination of nervous energy to the viscera, and act by way of revulsion, as the older physicians supposed, obtained from experience of this stage of the complaint a decided preference. A scruple of rhubarb, with eight or ten grains of submuriate of mercury, or the latter with full doses of powder of jalap, or scammony, or with gamboge, or compound extract of colocynth, were exhibited with this view. A grain of the extract of elaterium repeated every four or six hours, till the third or fourth time, was also found to be a very powerful hydragogue cathartic. The application to the head of cold water, or pounded ice, when it could be procured, or of some of the freezing mixtures, or the evaporation of ether, was frequently used as auxiliaries. Tincture of digitalis, in a solution of nitrate of potass, acetate of potass, or liquor of acetate of ammonia, or with other diuretics in various degrees of combination, were also found eminently serviceable. The power of digitalis in controlling the action of the heart and arteries, in allaying irritability, and relieving the brain, after the active part of the treatment had been carried to the utmost extent, was found to be considerable; and, in combination with calomel and squill, was chiefly relied upon, along with repeated blistering, to promote absorption, in cases where effusion between the membranes, or into the ventricles of the brain, was supposed to have taken place.

(*To be continued.*)

ART. VI.—*Account of an operation for the Extraction of a Polypus from the Nose*, performed by WILLIAM ROBERTSON, Esq. one of the Surgeons of the Kelso Dispensary.

A. W. a man aged 64, applied at the Kelso Dispensary for advice, 11th March 1826, on account of a polypus in the right nostril. This complaint was of several years standing; but latterly it had increased to such a degree, as to obstruct completely the passage of air through that nostril, and it formed an external tumour, which was now of such a size as to impede vision in the right eye, while it very much disfigured the same side of the face.

The extremity of the polypus projected a little beyond the orifice of the nostril, and, on closer examination, the pressure of the tumour was found to have caused the absorption of the neighbouring bones in no inconsiderable degree.

Several attempts were made to remove the polypus by the ordinary methods; but to introduce the forceps or ligature was found impracticable. On the failure of these usual modes of operation, I determined to make an incision through the cartilage on the affected side, a mode which seemed to me to afford my patient his only chance of getting rid of this deformity, and avoiding the evils which could not fail to arise from the continued presence of so large a tumour.

An incision was made, beginning near the point where the lacrymal duct terminates in the nostril, and continued down to the under edge of the cartilage. By this incision, the body of the polypus was brought into view. Two ligatures were passed through it in a transverse direction, as high up as it was possible to reach. But the tumour, from its great bulk, occupied so completely the whole cavity of the nostril, that it was found impossible, even with the smallest bistoury, to reach its root, which extended far back into the nostril, and down to the throat.

By continued perseverance, however, so much of the tumour was brought away by the knife, aided by the ligatures, that I was enabled to pass the point of my finger down to the root, and at last succeeded in bringing away the whole of it.

We found the weight of it amounted to 3 oz. 6 dr. being only two drachms less than a quarter of a pound.

The edges of the wound were brought together and retained in union by three stitches at proper distances, slips of adhesive plaster being applied in the intervals, and over these the usual dressing was placed. At the end of a fortnight the wound had completely healed up, and very little deformity was left. The loss of blood during the operation was not so great as might have been looked for from the size of the tumour, and the extent of its connections.

To Dr Douglas and Mr Stuart, both of the Kelso Dispensary, I am indebted for their advice and assistance in the course of the operation.

ART. VII.—*Case of Amputation at the Shoulder-Joint, under unpromising circumstances, terminating favourably.*

By JOHN EVANS, M. D. Surgeon, R. N.

THE aggravated nature of the malady, and the happy issue of it are the only inducements for the publication of the following case. To the operation itself, I attach very little importance, believing that every surgeon in the present day would readily undertake a similar one under similar circumstances.

Patrick M'Colgan, æt. 16.—Early in life deprived of parents, he was subjected to all and every privation. Inheriting the scrofulous disposition, he soon became affected with the disease. At 13, he suffered from two attacks of periosteal inflammation. One of these affected the right femur, the other, the lower part of left tibia. Enlargement of the latter, and repeated exfoliations followed, but both limbs were now permanently healed to all appearance. The diseased action next settled on the right elbow-joint, then the middle of the humerus, and in this state he was sent to a county infirmary.

He was, as he informs me, two years there; part of this time with the original attacks of the lower extremities, and the remaining part from the state of the arm now described.

He presented himself on the 6th June, at the Fahan Dispensary, and I have no doubt that he had daily been getting worse. The elbow-joint was now enlarged to three times its natural size, with a deep-seated fluctuation. It was readily seen that all the soft parts here were involved in total destruction. The humerus suffered still more, if we could judge in the view now taken. A little above its middle was an extensive ulcer, depending on caries of the bone, and corresponding to the termination of the deltoid. A second ulcer was seen more internal, and this evidently communicated with the shoulder-joint, as matter could be forced down from the coracoid process to both apertures. Still there was no discoloration of the integuments covering the joint, nor did handling it cause much pain.

His look excited pity; he was emaciated and miserable. He had no cough, though he had profuse night sweats. The pulse was feeble, and 120.

The circumstances of the case inevitably led to the conclusion, that nothing could save this lad's life except amputation at the shoulder-joint, and this not to be delayed. On perusing this opinion, the neighbouring gentry contributed to his support, and he submitted most gladly to the prospect of being either freed of ailment, or to get rid of a world of misery.

It was determined to perform the operation, which took place on the 9th June, in the following manner. Owing to the diseased state of the elbow-joint, the fore-arm was contracted to an acute angle with the humerus; this, therefore, could not be extended, and all attempt at motion excited much pain. I placed him in a chair, having secured him well. The arm was held by Mr Charles Lecky, my senior apprentice, who carried it out from the body. The subclavian artery was compressed by Mr A. Wilson, another apprentice; while Surgeon Layrd of the Malin Dispensary assisted me with boldness and judgment. We operated in a small cabin, had wretched light, and wretched accommodation.

The handle of the tourniquet, well muffled, was applied to the artery, after emerging from the scaleni muscles. We repeatedly commanded the pulse by the pressure thus applied; and I believe both Camper and Professor Thompson look on this as a certain test of the subclavian artery being compressed.

The first incision was made by the amputating knife transversely, a little above the middle of the deltoid. It was made with quickness, and it well defined the flap anteriorly. This was the method followed by Dr M'Arthur of Haslar. The second incision was made by the scalpel, on the inner edge of the deltoid, carrying it down to the transverse one, and bringing well into the flap the inward portion of this muscle, and thus reaching the bone. Smart hemorrhage took place from the anterior circumflex, which was tied in this step of the operation. The third incision was made on the outward edge of the deltoid, and it also ended in the transverse one. There was no vessel to tie here, nor was the posterior circumflex seen afterwards. I look upon the forming of these two incisions as of great importance in the final steps of the operation; by carrying them high up, it permits easy access to the joint. The deltoid was dissected well back; the arm carried backwards and outwards, and rotated outwardly, which gave the poor sufferer great pain. The capsular ligament was entered now anteriorly and inwardly, near to the short head of the triceps, and it was divided outwardly.

The amputating knife was again taken, and applied behind the ball of the humerus; its edge was kept close to the bone; and the triceps was cut downwards and outwards, making a corresponding flap to that formed by the deltoid. The artery was divided at the last incision of the soft parts.

Before dividing this vessel we examined the pulse, and found it compressed. Mr Layrd was to have seized hold of the artery, by having his fingers placed behind the knife, but he could not, situated as we were, do so. One profuse gush of blood took place, which convinced us that the pressure above the clavicle was of very little use. I therefore, with the fingers of my left hand, seized hold of the artery imbedded in the soft parts; or rather, by grasping the soft parts, I commanded the bleeding vessel. The pressure was now removed above, but the hemorrhage was unrestrained whenever I slackened the pressure by my fingers. The artery retracted nearly half an inch; and after some fruitless attempts to find it, the tenaculum was plunged deep into the hollow concealing it, the vessel then got hold of, and tied by a single thread. We also tied the vein.

About eight ounces of blood were lost in the operation, certainly more than we expected.

The arm, it appears, was removed from the socket in two minutes and a half, and the securing the vessels occupied a period of eight.

The wound being cleared of blood, and some wine given, we found, on bringing the parts together, that, from the carious state of the ball of the bone, in dividing the capsular ligament, a portion of it (the bone) the size of a bean, had been sliced off, and left adhering to the soft parts. This we dissected out. The capsular ligament was not further interfered with. The nerves were cut sufficiently high, and appeared well covered with soft substance. The flaps were secured in the usual way by suture, bandage, &c. I have been tedious in describing what may be called a simple operation; but difficulties in restraining the hemorrhage presented, which I am anxious to confess. Besides, every body knows how different the case is, when we operate with assistance, and with the advantages of an hospital, or in the unfavourable situation in which we were placed.

The dissection of the arm, which took place after the operation, showed the extent and severity of the disease, and that removal of the member gave the only chance of recovery. The abscess in the elbow-joint was deep-seated, involving in morbid structure all the immediate soft parts. The radius at its *tubercle* was carious. The humerus was necrosed, nearly its whole length; the only part remaining free from disease was its articulating surface with the *ulna.*

The large ulcer which occupied the middle of the deltoid proceeded from a cavity in the bone that would contain a hen's egg; this had been loosely filled by bone, which fell out on being handled; the second ulcer communicated with this, and also with the ball of the bone, which was black, honeycombed, and could be sliced into distinct portions. So far the operation was justified, and I hope we will be acquitted of having undertaken it but from pure and urgent necessity. Indeed it was too long delayed.

The after treatment was regulated by the symptoms which supervened on the operation. Considerable irritative fever came on. Anodynes were freely given. The weather was hot and sultry. The thermometer where he was stood at 72°.

On the fifth day delirium came on. He would not remain in bed, bounced up, saying he would go home; however, on reasoning with him, he became collected and returned to bed. The perspirations now were profuse; the pulse 140. He took the aromatic sulphuric acid freely, and the sulphate of quinine in fit doses morning and evening.

Sixth day, the delirium left him; more nutritious diet was admitted, and ale in proper quantity was given.

Eighth day, the pulse came down to 96, and gradually to 80. On this date he walked out of doors; the perspirations ceased; the wound much narrowed, and healing rapidly.

We will only further add, that the pressure above the clavicle quite compressed the pulse, but that it had little effect in arresting the hemorrhage from the divided artery. The pressure made was steady, firm, and strong, and was even more than the patient could bear. However, by quickly seizing the soft parts in which the artery was, we for the time commanded this vessel. The last ligature came away on the 20th day, after considerable and gradual pulling.

July 21st. Wound healed; general appearance very much improved.

Through the kindness of my charitable neighbours, I have collected a sum of money for this poor lad, and he has the prospect of becoming independent.

Buncrana, 4th August 1826.

ART. VIII.—*Surgical Observations.* By JAMES SYME, Esq. Fellow of the Royal College of Surgeons in London and Edinburgh, and Lecturer on Surgery in Edinburgh.

On Amputation.

IN a former number of this Journal, (viz. No. lxxviii.) I endeavoured to recommend the flap method of amputation, being satisfied that this mode of operating was infinitely superior in all respects to that then in common use; and it gives me great pleasure to find that the circular incision is now going rapidly out of fashion.

As I have reason to think that I have been somewhat instrumental in effecting this salutary reformation, I shall attempt very shortly to answer the objections which have been lately urged against the flap operation by surgical writers, and also those which, judging from private conversation with my friends, seem to deter many practitioners from adopting it.

Some surgeons object that transfixing the limb is a fearful-looking and painful proceeding. The best answer to this is a quotation from Dr Robertson's letter formerly published. "A convict on whom I had amputated some time ago, stole unnoticed into the ward, and witnessed this operation. He was so struck with the rapidity of the process, and the diminution of pain to the sufferer, that he stopped me on deck to express his surprise at the unnecessary pain to which he had been subjected."* Others attach great importance to the inconvenience that results from dividing the arteries in an oblique direction, which, no doubt, does render their ligature somewhat more difficult. But if the operator uses forceps, and possesses a moderate share of dexterity, he will not be much disconcerted on this account.

Mr Samuel Cooper, in the last edition of his useful Dictionary, alleges that I have committed a mistake, in supposing that muscle will afford permanent protection to the bone. "Some late writers, particularly Mr Syme, in expressing their preference to muscle as a covering for the end of the bone, seem to forget one fact which I have often noticed, viz. that the muscular cushion, though at first thick and good, soon shrinks to a comparatively small mass." But though the muscular tissue in this situation, like any other not duly exercised, diminishes in size and loses its distinguishing characters, the cellular substance, &c. which constitutes its base, still remains, and forms a most useful addition to the skin in protecting the bone. Laying theory aside, I would advise Mr Cooper to contrast a few stumps formed by flap, with those resulting from circular incision. He will then, I am persuaded, withdraw his objection to the method I support, in so far, at least, as respects the superior protection which it affords to the bone.

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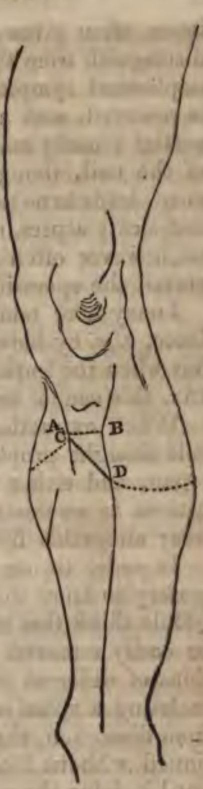
* Letter to James Syme, Esq. from Dr Robertson, Surgeon of the Convict Hospital Ship, Sheerness. Edinburgh Medical and Surgical Journal, Vol. xxii. 1824.

In amputating a few inches below the knee, as we are obliged to do when the limb is extensively injured, or when the patient cannot afford to maintain an artificial leg, there certainly are some pretty strong grounds of opposition to the operation by *single* flap.

If the surgeon carries his knife close to the bone, and cuts outwards in a curve, whose convexity is forwards, as is necessary in operating at the middle of the leg, he will leave far too much muscle, unless, indeed, the patient is most remarkably attenuated. A professional friend mentioned to me, not long ago, that he had seen such force required for squeezing the muscle within due bonds, *i. e.* so as to be covered by the skin, that strangulation and gangrene were the consequence. I remarked to him, that in these cases the operation must have been badly performed—and so it doubtless was; but though the inconvenience in question may be in great measure obviated by entering the knife at some distance from the bone, and cutting in a curve, the concavity of which is towards them, a surgeon, unless very much practised, will still be apt, particularly when operating on a muscular limb, to leave redundant flesh.

Another objection to amputating by single flap is, that if union by the first intention unfortunately does not take place, there will be little opportunity for the escape of blood and pus, and consequently great opportunity for the production of abscess. And a reason for not encountering the various obstacles now mentioned, is, that a good covering for the bone is of less consequence here than elsewhere, since the *face* of the stump is not used for supporting the weight of the body.

I had lately occasion to amputate close below the tuberosity



of the tibia,* and proceeded in the following method, which seems to me less objectionable than either the circular incision or single flap.

Having ascertained with my left hand the point where it was necessary to divide the bones, I applied the point of a knife, such as is usually employed for flap amputation, at the inner edge of the tibia, a little lower than the place for sawing, and cut obliquely, downwards and outwards, over its flat surface; then entering the point where this preliminary incision terminated, I transfixed the limb close to the fore part of the fibula, and formed a good flap from the peroneal muscles, &c. I next passed the knife behind the bones, so as to make a second flap from the remaining soft parts. The operation was completed as usual; and the flaps, which were of nearly equal size, fitted extremely well. The patient had a speedy recovery, and possesses a most comfortable stump.

A, B, Place for sawing.
C, D, Preliminary incision.

Onychia Maligna.

The excellent description and delineation of *Onychia Maligna*, published by Mr Wardrop in the fifth volume of the Medico-Chirurgical Transactions, render it unnecessary for me to particularize the characters of that obstinate, unseemly, and painful disease. The present observations relate to its morbid anatomy and treatment only.

Mr Wardrop believed that he had discovered a nearly infallible cure, a sort of specific for this disease, in the use of mercury internally; but every surgeon of experience must, I think, have found this remedy ineffectual for the cure of genuine onychia.

It is true, that the mere irritation of a nail, killed † by violence, often gives birth to appearances, which it is difficult to distinguish from those of that disease; but in this case, all the unpleasant symptoms disappear so soon as the offending cause is removed, and any other treatment conjoined with this, the partial remedy may seem beneficial. But in onychia, removal of the nail, though perhaps succeeded by a partial improvement, leads to no permanent recovery;—a new one, of imperfect and sickly aspect, makes its appearance, and will continue to do so, however often the surgeon's cruelty and patient's fortitude permit the operation to be repeated.

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* To show how high the limb was removed, I may notice, that though it was large and well nourished, I secured only one artery, viz. the popliteal.

† I use the expression *killed* in conformity with common custom, being quite aware that the nails cannot, any more than the cuticle or hairs, be killed, properly

I may here remark, that when the nail is destroyed by violence, *e.g.* by blows and squeezes, its separation is very easy; but when the imperfection is owing to vitiated action of its matrix, this cannot be effected without much pain and difficulty.

When extraction of the nail has been tried without success, it is thought proper to attack the diseased matrix or secreting organ, and either correct its disorder by means of such applications as arseniate of potash and nitrate of silver, or take it away altogether by the knife.

In order to use these means with effect, it is evidently necessary to know the seat and extent of the said matrix. Many people think that it is confined to the root of the nails, and may be easily removed by including it within two semilunar incisions of different convexities, meeting at their extremities, and inclosing a space one or two lines in breadth. But we learn from dissection, that the vascular membrane in question is continued without interruption all the way down under the nail, until it joins the common integument, as may be shown by injecting minutely, and then either making a longitudinal section of the entire digit, or removing the cuticle and nail by maceration.

Hence it appears, that any operation confined to the root of the nail must be ineffectual for removing the diseased matrix; and if the whole be rigidly dissected, or rather scraped off, then I think the patient will have reason to regret the mistaken mercy of his surgeon in not taking away also the useless, exposed, and unsightly phalanx.

I am inclined to think, however, that in most cases of inveterate onychia, removal of the soft parts, no matter how careful and complete, will be inadequate to effect a cure, since, in the cases which I have dissected, the *bone* was so much affected as to preclude completely the possibility of such an oc-

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speaking, in as much as they do not seem possessed of life. In common with the parts just mentioned, however, when deprived of their natural connection, they suffer considerable change of appearance, and act like foreign bodies in keeping up irritation.

currence. The phalanx is enlarged, loosened in its texture, and shoots out slender processes in all directions, so as to resemble on a small scale the clothier's brush.*

When, therefore, notwithstanding removal of the nail, and a fair trial of the local and general remedies usually recommended, the disease remains obstinate and unmanageable, the part had better be taken away at once, instead of lengthening out the patient's sufferings, or aggravating them by painful treatment.

I was lately requested to amputate in a case of this kind by the friends of the patient, who were quite exhausted by attendance, first on one, and then on another surgeon in town. I had no hesitation in doing so, upon learning that the disease had lasted nearly two years, and that the nail had been removed *five* times, to the boy's inexpressible pain, but without the smallest benefit; though all means likely to afford relief were at the same time fully tried.

Second case in which the head of the Humerus was excised.

In the number of this Journal for last July, I shortly noticed the case of one Charles Borthwick, about forty years of age, who was evidently labouring under an extensive caries of the shoulder-joint.

At that time the patient's health seemed to forbid an operation; and I mentioned the case merely to support the justice of my opinion, that there is frequent occasion for performing excision of the bone in question, since it appeared, from this unfortunate person's history, that, during the four years and a half which the disease had lasted, and more especially during the three years when he was under the care of different practitioners, there had been abundant opportunity of operating under favourable circumstances long after the nature of his complaint was clearly characterized.

The case of Christian Laing having terminated so satisfactorily,† I felt anxious to afford poor Borthwick the benefit of an operation; and with that view sent him to the sea-side, where he had every thing that could be desired, in respect to good air, diet, and attendance. The effect of this salutary change was soon manifest in an increase of appetite and strength together, with a general improvement in appearance. The cough continued, but seemed to depend in a great measure on irritation, as it regularly kept pace with the pain of shoulder.

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* This condition of the bone must not be confounded with that described by Mr Liston in this Journal for last July, which seems to be simply an exostosis, similar to that mentioned by Sir A. Cooper in his Essay on Exostosis, and remediable by milder means than amputation. See Cooper and Travers's Surg. Essays, article Exostosis, paragraph Fingers and Toes.

† I had lately the pleasure of a visit from her. She has completely regained her health, and can use the arm for every purpose ordinarily required of it, such as sewing, washing, knitting, putting on her clothes, &c. No one could tell, from her appearance when dressed, that there is anything unusual in the structure of her shoulder.

Respiration was performed naturally; and the stethoscope afforded my friends who examined the chest by its means no reason for suspecting any morbid alteration of structure in the lungs. In the course of four or five weeks, the patient becoming very anxious for relief, I began to think seriously of operating, and, meeting with the approbation of my friends, Drs Shortt, Dease, and Mackintosh, proceeded to do so on the 11th of July, in presence of a number of my friends and pupils, and assisted by Dr Ballingall, Professor of Military Surgery.

Having brought the head of the bone into view, by means of incisions similar to those described in Christian Laing's case, I attempted to detach it from the scapula; but in effecting this I experienced considerable difficulty, partly from rigidity of the muscles, but chiefly from ligamentous anchylosis of the joint. The long head of the biceps, too, perplexed me not a little, as it was attached to the humerus between the tuberosities. Having succeeded in dividing all the connections, I turned out the head of the bone and sawed it off. On inquiring into the state of the scapula where we were prepared to expect more or less disease, I ascertained that the root of the coracoid process and upper part of the glenoid cavity were carious. After making a very free removal of the diseased bone, by means of cutting pliers, I secured the posterior circumflex artery, put two stitches in the transverse part of the wound, filled the cavity with caddis, and then fixed the limb with a sling and single turn of a roller.

Notwithstanding the pain and tediousness of this operation,—removal of the bone alone occupied ten minutes,—the patient never had a bad symptom, and was walking about at the end of a week. The wound suppurated most favourably, and a great many fragments of bone came away, so as to leave the surface uniformly covered with firm, healthy granulations.

It is needless to detail particularly the future progress of the case. Suffice it to say, that the cavity gradually contracted, and in the course of six weeks was nearly healed. Since that time the progress of the case has not been so rapid, and an old sinus, which ran extensively under the trapezius, still continues open; but I cannot discover any diseased bone, and trust, that, as the progress, though slow, is evidently towards amendment, it will ultimately terminate in a cure. I publish the case at present, merely to show with how little constitutional disturbance excision of the shoulder-joint may be performed even in the most unfavourable circumstances. I will not repeat here the comparison formerly made between the severity of this operation and that of amputation; but I cannot help remarking, that, putting all other considerations out of the question, it is of no small consequence, in operating on a weakly subject, to avoid creating such disturbance in the balance of action, as must result from removing at once so large a portion of the body as the whole superior extremity.

6, *Forth Street*, 1*st November* 1826.

ART. IX.—*Case of Scarlet Fever, succeeded by Profuse Hemorrhages.* By JOHN PAUL, M. D. Member of the Royal College of Surgeons in London. Communicated by Mr LISTON.

I WAS sent for on the 14th of May to attend David H—, a boy who had nearly completed his seventh year. On the preceding day he complained of headach and sore throat, with sickness and vomiting. When I saw him, it was quite evident that he laboured under scarlatina in a very violent form. There was a high degree of febrile excitement, with vivid scarlet efflorescence over the whole body. The fauces were much inflamed, and loaded with mucus. Ulceration had commenced in the tonsils. In a few days the inflammation extended to the parotid and submaxillary glands on each side of the neck. On the ninth day of the fever, the rash was on the decline, but there was no abatement of the constitutional excitement, which at this time appeared to be kept up by the ulceration still going on in the throat, and the extension of the inflammation to the glands in the neck. It was not till a week after the decline of the rash that the throat began to clean, and the inflammation in the salivary glands to subside; but then symptoms of dropsical effusions manifested themselves by scanty urine, drowsiness, puffy swelling about the eye-lids, laborious breathing, fulness of the belly, and slight pitting in the ankles on pressure. The pulse during the eruptive period was seldom under 120, and during that of the dropsical effusions was often 130, and sometimes 140.

In the treatment of this case, antiphlogistic measures, with free ventilation, were strictly attended to. Purgatives were freely exhibited, in particular whilst the rash was out. He was bled from the arm the first day I saw him, but only to the extent of about 6 oz.; symptoms of fainting occurring, prevented the farther abstraction. The heat of surface being intense, it was frequently sponged with equal parts of spirits and vinegar. The glands in the neck were so much swelled, and so painful to the touch, as to require the application of leeches, fomentations of poppy-heads, and emollient poultices. The throat was kept as clean as possible by means of gargles. On the appearance of dropsical effusion, the symptoms being very urgent, the strong mercurial ointment was rubbed in along the spine, with the view of exciting the absorbent system; and *Tinct. Digit.* was given in large doses, with *Spirit. Ether. Nit.* and *Acet. Potass.* On the 6th of June there was a decided remission of fever, and the dropsical symptoms had disappeared. An ounce only of the stronger mercurial ointment was used. It did not produce any tenderness of the gums, nor was any fœtor of the breath perceptible. On the following day, about noon, the fever returned with great violence, but towards midnight it again subsided. From the 7th till the 13th, there was so little fever, indeed so little complaint of any kind, that he was considered to be in a state of convalescence. He was at this time much reduced in flesh, but as he was able to take a sufficient quantity of nourishment, hopes of a speedy recovery were entertained.

On the 13th, a drop of blood was observed to trickle down his upper lip now and then from each nostril, but it was thought that he had been blowing or picking his nose; and no other sign of impending disease was apparent. On the evening of the 14th, blood oozed from the ears. On the morning of the 15th, it trickled down his upper lip from the nostrils without intermission; it oozed slightly from the eye-lids, and that in the ears had coagulated. Petechiæ of a dark brown colour, not very numerous, but distinctly marked, were observed all over the body. Urine deeply coloured with blood. Pulse not under 130. No appearance of blood in the discharges from the bowels. Has a desire for food, and his stomach is quite retentive. Sulphate of quinine was now commenced; and infusion of roses with sulphuric acid was also ordered. 16th.—Passes great quantities of urine, which is very florid, and has much the appearance of arterial blood. This morning blood is likewise oozing from the gums. It was impossible yesterday to restrain the hemorrhage from the nostrils, but very firm coagula have now formed in them, which have completely suppressed it. A saturated solution of alum was frequently thrown up his nostrils, but without effect. His strength was so much exhausted that he could not undergo the fatigue of plugging from the posterior *nares.* He has taken seven grains of sulphate of quinine in port wine, but he refuses to take the infusion of roses with sulphuric acid. He drinks freely of lemonade, and takes a good deal of nourishment, consisting principally of beef-tea, and calf's feet jelly with Madeira. *Vespere.*—Has passed in the course of the day a great deal of bloody urine, but there is a diminution in the quantity this evening, and little appearance of blood in it. The exhaustion is great; the countenance pale and deadly; and the emaciation is as great as it ever is in the last stage of phthisis. "*Pallor in ore sedet: macies in corpore toto.*" He swallows with difficulty, and when he is raised up for that purpose, he is unable to support his head. The pulse at the wrist is quite distinct, but very weak; at the ankles it is scarcely perceptible; and the feet at different times through the day have been so cold as to require bottles filled with hot water applied to them. He has been taking the sulphate of quinine to-day in doses of two grains at a time. 17th.—Early this morning he again passed urine twice very bloody; afterwards it was only slightly tinged; no increase of petechiæ. He has taken since yesterday morning, and within twenty-four hours, fifteen grains of the quinine. He vomited the last dose, but has retained thirteen grains. He continues to take a good deal of wine and nourishment. The quinine to be continued, but in reduced doses. *Vespere.*—Urine scanty, and nearly free from blood. He has taken four grains of quinine since morning. Ordered to have ten drops of *Ol. Terebinth.* thrice a-day.

18th.—Appears somewhat stronger to day—urine is free from blood. Pulse is quite distinct at the ankles. Petechiæ are fading. Continues to take sulphate of quinine. 19th.—Improving. The clots of blood were removed from his nostrils this morning. Takes four grains of the quinine daily. Bowels are regulated by small doses of castor oil. 20th.—Continues to gain strength. Petechiæ are not observable to-day. *Ol. Terebinth.* to be discontinued. To take three grains only of quinine daily after this day. 25th.—Continues to improve. Takes notice of his attendants. Ordered still to continue the quinine, but to take only one grain twice a-day. July 2d.—Improving in strength. Ordered to take a grain of his medicine every forenoon for a week. 9th.—For the last few days he was dressed and placed in a sofa for a short time each day. The quinine is now to be discontinued; and he is to be carried to the country for change of air. 20th.—His appetite is good, and he gains strength daily. Continues quite free from complaint. August 21st.—He is still thin, but his health is now completely re-established.

This case was remarkable for nothing but its severity, till the discharges of blood, along with petechiæ, supervened; and these occurrences, after a period of convalescence, are, so far as I know, rather uncommon; for this reason, as well as to show the extent to which, under similar circumstances, the sulphate of quinine may be given, I am induced to think that it will not be deemed unworthy of insertion in the Edinburgh Medical and Surgical Journal. I am well aware of the occurrence of hemorrhages and petechiæ in the advanced stage of scarlatina maligna; but they are then the result of a dissolved state of the blood, and the patients for the most part die. That such was the condition of the blood in the case now detailed, I am unwilling to allow, at least, as far as coagulation can be received as a proof to the contrary, for the blood which oozed from the *meatus auditorius externus* and nostrils coagulated very firmly. If not to dissolution or tenuity of the blood, to what cause then are the hemorrhages to be attributed? It is by no means likely, under all the circumstances of the case, that the vascular system could have been overloaded; and that in consequence nature made an effort to relieve herself. It appears to me most probable, that they are to be ascribed to great loss of contractile power in the extreme vessels themselves, from severe and long-continued febrile action, which allowed the blood to escape through their mouths. The hemorrhage was so profuse from the urinary organs that I think the blood must have passed from the emulgent arteries through the secretory structure of the kidneys. Taking this view of the pathology of the case, the beneficial agency of the sulphate of quinine may be easily accounted for. This medicine was certainly administered in very large doses within twenty-four hours during the extreme violence of the case; but as it disturbed the stomach only once very slightly, and as the indications in view could not, in my opinion, have been better fulfilled by any other, I was desirous to give it a fair trial; and I am happy to say that my expectations were not disappointed. As soon, however, as the hemorrhages were checked it was given only in very moderate doses. From the close analogy which the case under consideration bore, in many respects, to *purpura hæmorrhagica,* quinine may, I think, be found useful in some of the modifications of that disease. I do not mean to deny, however, that a depletory plan of treatment may sometimes be required, as the writings of the late Dr Parry and others affirm.

Elgin, 23d August 1826.

Art. X.—*Case of Pompholyx Diutinus.* By H. C. Sherwin, Esq. Surgeon to the Dispensary, Hull, and Corresponding Member of the Medico-Chirurgical Society Edinburgh, &c. &c.

Elizabeth Berriman, aged 73, an inmate in the poorhouse of this parish, was in April last seized with a troublesome itching upon different parts of her skin, which was invariably succeeded by a small vesicular eruption. Each vesicle, some of which were bigger than peas, had a very slightly inflamed base, and contained a clear colourless fluid like pale urine. These would disappear after forty hours, when a fresh crop, preceded by intolerable itching, usually made its appearance in some other part. A continued succession of this troublesome affection existed, without any material alteration in its external features, from the beginning of April to the second week in June. During this period the pulse was small, and moderate in frequency, hardly ever exceeding 65 or 70 beats, except now and then after a restless night; the tongue was rather pale, but by no means foul; the appetite was capricious; the complexion of the face like tallow; the urine slightly deficient, and approaching to an olive tinge; and the stools, though sometimes natural, were more commonly slightly irregular, and unhealthy.

At the onset of the disease the patient was purged sometimes with salts, sometimes with calomel, in small doses, frequently repeated. The warm bath was used repeatedly. Afterwards a liberal share of cinchona and other tonics, both vegetable and metallic, were administered for a period of two or three weeks. Her diet, which had commonly been as good as that of the lower orders, consisting chiefly of equal quantities of farinaceous and animal food, was improved; and the patient was allowed wine, porter, &c. in suitable quantities. From this mode of management, however, no benefit, and scarcely any variation, resulted during ten weeks, except that her countenance gradually grew leaner and more anxious.

Tired with so long and unavailing use of medicine and regimen, at length the old woman applied to other medical gentlemen, of considerable talent, connected with our Infirmary, who, I believe, pursued what is termed an alterative treatment; but in less than a fortnight after, the itching and the vesication suddenly increased, and the skin became nearly covered with *bullæ* as big as almonds. She was then disabled from visiting the Infirmary as an out-patient, and she again devolved upon my care as surgeon to the parish poor. The blebs increased in number and size with such rapidity, that, in the course of three or four days, excepting the soles of the feet, palms, and parts invested with hair, almost the whole surface of the body, with the slightest intervals, was covered with them, some being the size of a goose's egg, some that of an ostrich. The patient's appearance, as may be well imagined, was hideous, and her life seemed likely to be worn out by mere irritation.

In observing the growth of the largest blebs, I remarked, that they invariably arose small and pellucid, and attained their largest size in about two days, and not till they began to shrink did they assume a purplish hue, which I afterwards found was more owing to a tinge acquired by the dead cuticle than to any alteration of the contained fluid.

One of the greatest sources of suffering at this time was the raw surfaces, chiefly on the back, nates, and hams, left by the ruptured vesicles, which glued the skin to the sheets, notwithstanding the abundant use of lard. This evil, however, was partly obviated by interposing fine oiled silk.

Five grains of well-made mercurial pill were directed to be given every four hours. No sensible impression was made on the system during forty hours, after which time the urine improved materially in quantity and appearance; and on the third day a quantity of bilious matter came away with the stools. As neither salivation nor any other distressing effect was produced by the pills, they were continued unremittingly; but after the sixth or seventh day, finding that very few fresh vesicles arose, and that only some old ones remained, which gradually died away, or were ruptured, and that the secretions were easily excited, I reduced the quantity of pill to fifteen grains daily. Even this was discontinued before the expiration of a fortnight, as only one vesicle, situated upon the instep, was left. This sloughed, and assumed a very threatening aspect, but granulated very well, as the system gained more tone under a good appetite and a good diet.

When the eruption had entirely departed, the skin was left very dry and mealy; the legs and thighs pale, flabby, and impressible, like dough. In a short time, however, the skin became perspirable, and the flesh more firm and sanguineous; and the patient mended so well, as to be able to take walking exercise in the month of July. She has since remained unaffected by the above or any other important complaint.

I never observed that fever accompanied the case at any period; and though the pulse might acquire some degree of acceleration after a restless night, yet this always subsided in the course of the ensuing day to its usual standard of about 60 beats per minute.

As to my views in administering so much of the blue pill, I confess that I had no very clear and satisfactory reasons to induce me, further than an undefined hope, that, by exciting an active secretion in the kidneys and digestive organs, I might possibly relieve the excessive and peculiarly morbid determination to the skin, between which and them some vicareous operation seemed to be going on. Perhaps less of the pill might have succeeded, and would be proper in another case; but as I perceived such a rapid change for the better, I could not prevail upon myself to diminish it till a perfect and powerful derivation was effected.

No case ever succeeded better, considering the age of the patient, and the length and obstinacy of the disease; and though this case furnishes but one instance, I am more inclined on this account, as well as on that of its rarity and the difficulty of curing old persons, to lay it before the profession, that this mode of treatment, which, to the best of my knowledge, has not been practised before, may be subjected to more extensive trials. I would by no means be supposed to recommend so much mercurial pill, if any, in the other forms of pompholyx, where symptomatic fever or erysipelatous inflammation constitutes a prominent feature of the disease; as these states are generally short-lived under the employment of appropriate remedies.

But, for my part, I consider the malady called *pompholyx diutinus* to have been the most difficult to cure of any in that class, especially in the aged, as it is generally, I had almost said necessarily, the product of a bad state of constitution. I have refrained from giving a more minute description of the bullæ, &c. because, according to the best of my recollection, the disease is admirably described in the late Dr Bateman's book on Cutaneous Diseases, with which the readers of this Journal are well acquainted.

ART XI.—*Sketch of an Epidemic Varicella, which prevailed at Carlisle in the Summer and Autumn of* 1826; *preceded by Observations on the relative state of Small-Pox and Vaccination during the seven years previous.* By THOMAS BARNES, M. D. Physician to the Carlisle Dispensary and Fever Hospital, Member of the Royal Medical Society, and of the Wernerian Natural History Society of Edinburgh.

IN the fifty-ninth number of this Journal* will be found some observations on small-pox and vaccination, extracted from the Report of the Carlisle Dispensary for the year 1818. Since then small-pox has prevailed several times in Carlisle. The annual reports, which were drawn up by myself, contain notices of prevailing diseases. I shall extract from them, and from the registers kept at the Dispensary, such parts as relate to variola, varicella, and vaccination.

The register for 1819 contains no cases of variola, and only one case of varicella, which occurred in November. Two hundred and nineteen children were vaccinated during this year. One instance of death under vaccination took place, and the only one on the records of the Dispensary. A boy, six weeks old, apparently in good health, when vaccinated, was seized with a bowel complaint on the seventh day after vaccination, and died within twenty-eight hours of the attack. But it was not supposed that the cow-pock was at all concerned in the cause of his death.

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* Edinburgh Medical and Surgical Journal, Vol. xv.

In 1820 no cases of variola are mentioned in the register. Two cases of varicella are stated to have occurred in October, and two in December. During this year 194 children were vaccinated.

In 1821 the prevailing diseases were scarlet-fever, hooping-cough, typhus-fever, and small-pox. There was one case of varicella in January, two in February, and two in June. In May there were three cases of variola. Three also occurred in October, and four in November. The report for this year was drawn up in the beginning of February 1822. Nine cases of variola are registered in January preceding. The report contains the following observations. "Small-pox was brought to Carlisle this year by a poor widow, who has a large family, and is in the habit of travelling the country, and gaining a livelihood by receiving alms. She has occasionally resided here, and always had a strong prejudice against vaccination. In the summer, one of her children caught small-pox in the neighbourhood of Glasgow; immediately after which she returned to Carlisle, and took up her residence in Botchergate. Several children in the neighbourhood soon became affected. The first child that took the disease was fourteen months old, and died about the eighth day. Since then, four more deaths have occurred, and the disease is at present very prevalent; which facts prove, in a striking manner, the dangerous consequences of vulgar prejudices. Not only do parents bring their own lives, and the lives of their ill-fated children, into danger, but the community at large frequently suffers from their ill-founded opinions. The medical officers of the Dispensary took every opportunity of impressing upon the minds of parents, the advantages of the cow-pox over small-pox, and urged them strongly to have their children immediately vaccinated; and many complied with their advice. In a few cases small-pox had taken the first hold of the constitution, and in one both complaints went on together through their regular stages. In two cases, which had been vaccinated several years ago, and in four, which were vaccinated even after they had been several days exposed to the contagion of small-pox, in the same house where they lived, the disease was modified, and rendered so mild, that it had more the appearance of chicken-pox than small-pox, and the little patients were well at the end of a week. A girl, two years old, whose sister was afflicted with small-pox at the time she was vaccinated, took small-pox, and died on the 9th day after the appearance of the eruption. This little girl had been long in very bad health, and when vaccinated her recovery was thought uncertain. The cow-pox seemed good, and passed regularly through the different stages, except that the areola around each vesicle was less distinct than is generally observed. Small-pox appeared on the 6th day after vaccination, and was of the confluent kind. At present there are two patients recovering from modified small-pox after vaccination. One of them is a girl two years and a half old, the other a young woman seventeen years old. In both cases, the small-pox eruption took place on the same day, had the same appearance, and maturated and declined about the seventh day. The first was vaccinated ten days, the second fifteen years, before small-pox appeared. During this year 291 persons were vaccinated.

At the annual meeting of the subscribers, on 5th February 1822, a resolution was passed, expressing a conviction of the efficacy of vaccination in diminishing the ravages of small-pox, and, if universally adopted, in exterminating the disease. In order to promote and extend the practice of vaccination, the resolution empowered the medical officers of the Dispensary to withhold its benefits from those families whose parents should object to this salutary measure, without some very solid reason. This step was taken, in hopes that the lower classes might be induced to avail themselves more readily of the opportunity afforded them of having their children vaccinated at the Dispensary, free of expence, and that the directors of other institutions might be led to adopt a similar resolution, by which the practice of vaccination would be greatly extended. The resolution was never put in force, but, on account of its being generally known, it had the desired effect of increasing the number of vaccinations. The number vaccinated in 1822 was 338, and would have been much greater had not the apothecary been two months without vaccine lymph. A supply was obtained from the National Vaccine Establishment in London, in November, and a great proportion of the vaccinations took place after that time. Seven cases of small-pox occurred in February, and no more cases were met with until December, when it was again introduced by a child from Lancashire. Three were registered in December. There were several cases that did not make application to the Dispensary. The disease prevailed in various parts of the town, but in consequence of vaccination having been very generally employed, its spreading was checked, and its mortality in a great degree prevented. Five of the cases of small-pox that occurred in February had previously undergone the same disease. Some account of these cases will be found in the seventy-sixth number of this Journal.* In all of them, the disease, at both attacks, presented the essential characters of small-pox. Two cases of varicella are mentioned in the register for 1822, one in May, and the other in June.

In 1823 small-pox prevailed at Carlisle during the whole year, except the month of December. It was most prevalent in the summer. In the autumn it began to decline, and in winter disappeared. In the report for this year the following remarks are made: "Since the introduction of small-pox from Lancashire, the malady has spread in different parts of the town, but has been chiefly confined to the lower classes. The principal causes of its extensive prevalence were the public exposure of persons who had recovered from the disease, and the neglect of vaccination. It is well known, that this last most salutary measure is much less generally adopted in the lower than in the higher and middling classes of society. Small-pox most frequently attacked those persons who had not had the disease before, and had not been vaccinated; but cases have occurred in persons who had been vaccinated, and also in some who had been affected with small-pox previously. The practice of the Dispensary furnished ninety-one cases that were never vaccinated, and had not had the disease before; twenty-two had been vaccinated, and two had formerly had small-pox. Of the first class sixteen died; of the second one; of the third both patients recovered. Several cases of small-pox have occurred in Carlisle that had no medical attendant, the parents trusting to the advice of the ignorant and the prejudiced, by whose injudicious treatment the disease, in all probability, was often aggravated. Several of them died. When small-pox was spreading, and the alarm increasing, those patients who had neglected vaccinating their children were roused from their indifference; and as some of them entertained strong prejudices against vaccination, and had never seen small-pox before, no sooner did they observe its loathsome appearance and mortality than their prejudices vanished, and they were anxious to avail themselves of the advantages of its valuable preventive. Many applications were made at the Dispensary, and on this account, there have been, in the course of the last year, more persons vaccinated than usual. The number is 478. But such is the apathy and carelessness of some of the lower classes, that, as soon as small-pox began to decline, the applications for vaccination diminished. At present, (February 3, 1824,) there are many poor persons in this city who have neither been vaccinated nor had small-pox, and are therefore liable to the ravages of this dreadful and destructive malady.

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* Edinburgh Medical and Surgical Journal, Vol. xix.

In some cases small-pox was extremely mild, in others very malignant, and between these extremes were cases of different degrees of severity. In almost all the cases of small-pox occurring after cow-pox, the disease was mild, of short duration, and unattended with danger,—incrustation was generally completed on the sixth or seventh day. It is proper, however, to state, that, in a girl ten years old, the disease was severe, but ended favourably; the eruption was confluent, and interspersed with petechiæ. In another case, small-pox proved fatal after vaccination; but there is some reason to believe, that in neither of these cases had the cow-pox been genuine. One of them was vaccinated by a shoemaker, the other at the Dispensary seven years ago. We had no means of knowing any thing about the former, and the latter is not marked in the Dispensary register as having been infected with the regular vaccine disease. The child was not brought back to the Dispensary after the insertion of the vaccine ichor. Its mother says there was only one vesicle, which had a very small areola or inflammatory circle around it, and left a scar scarcely perceptible. It is therefore very probable that this child had resisted the proper course of cow-pox. Unfortunately, many children in this part of the country are vaccinated by persons not qualified to judge of genuine vaccine action. Many are vaccinated by regular practitioners, who never see them afterwards; and even at the Dispensary many persons are vaccinated who never return to have the vesicle examined, notwithstanding all the measures that have been taken to induce them. It is very probable that some of them have undergone the vaccine process imperfectly. One of the cases of small-pox occurring a second time, was a young man, twenty-four years of age, who had been inoculated with small-pox when a child, and had taken the disease regularly. There were many pits or depressions on various parts of his body. He came to Carlisle to the funeral of a nephew, who died of small-pox, and caught the complaint from him. He had a high degree of fever before the appearance of the eruption; the pustules were very few, they resembled the pustules of modified small-pox after vaccination, and, like them, maturated on the fifth or sixth day. The other was a young woman, who had also gone through small-pox after inoculation, and was much pitted on her face. Her second attack of small-pox was severe; the eruption was confluent. Three of her brothers and a sister had the disease at the same time. None of them had been vaccinated. A boy three years old died. In December small-pox disappeared, and hooping-cough became prevalent. Several children affected with hooping-cough were vaccinated, but the cow-pox did not cure the disease, as is reported to have happened with some of the faculty in America; neither did it increase the danger, nor mitigate the violence of the complaint.

Although vaccination does not give complete protection against small-pox in every case, yet the late epidemic has afforded much satisfactory evidence of its preventive powers, and of the incalculable benefits derived from it. Many instances have occurred of vaccinated persons escaping, and the unprotected taking the disease, in the same family, even where they were living in the same room, sleeping in the same bed, and were exposed to variolous contagion of the most malignant kind.

The register for this year contains two cases of varicella, one in May, and one in August.

In May 1824, small-pox was again introduced into Carlisle. A few cases afterwards appeared in several parts of the town. In this year, nineteen cases of small-pox were entered on the books of the Dispensary, and one case of chicken-pox. Two of the cases of small-pox are reported to have been modified by vaccination. In the latter end of March of this year, measles commenced, and spread with great rapidity. In the course of three weeks this malady had extended to every part of the town, and in a very short time became so general, that few children escaped. Four hundred and nineteen cases were admitted on the books of the Dispensary, and of that number 398 recovered, and twenty-one died. The epidemic began to abate in May, and nearly disappeared in June. One or two cases occurred occasionally afterwards, but the disease showed no tendency to spread. Two hundred and thirty-three children were vaccinated in 1824.

The contagious diseases that prevailed in 1825 were small-pox, typhus-fever, hooping-cough, and scarlet-fever. Thirty-nine cases of small-pox were attended from the Dispensary. The greatest number were admitted in June. The disease occasionally occurred in the preceding months, and now and then presented itself during the summer and autumn. It proved mortal in five cases, two of which had been vaccinated; but, from the accounts given by their parents, and from the appearance of the vaccinated places, there was good reason to believe that the cow-pock had not been genuine in either case. They were not seen, after they had been vaccinated, by a medical man. The parents said that little or no inflammation followed the vaccination, and the scars were observed to be small and irregular. Six of the cases of small-pox were modified, and occurred in children who had been regularly vaccinated: they were mild, and soon recovered. In March, a girl seven years of age was affected with confluent small-pox, which went through its regular course, and she recovered. The parents of this girl stated, that five years ago they lived at Dunbar when small-pox was prevalent. This little girl took the disease, and was attended by a medical gentleman, who said, that he had no doubt of the nature of her illness. There were some pits remaining on the forehead and legs when she had the second attack in Carlisle. In this year, no cases of varicella are inserted in the register kept at the Dispensary. Three hundred and thirty-eight children are recorded in the register as having been vaccinated.

In the latter end of May, of the present year 1826, varicella made its appearance in Carlisle, and continued to prevail during the summer and autumn. It appeared first in Blackfriars Street and Botchergate. Afterwards cases were met with in almost every part of the town. The complaint was in general so mild, that medical advice was seldom sought for or required. Thirty-nine cases were entered on the books of the Carlisle Dispensary, and attended by the medical officers of the institution. Four occurred in May; ten in June; six in July; seven in August; nine in September; and three in the beginning of October, since which time no cases have been observed. Besides these cases, I saw a few in private practice; but the disease was most frequently met with in the lower ranks of life. No cases of small-pox have occurred in Carlisle, or its vicinity, since the commencement of the present year.

Of the thirty-nine cases of varicella, twelve had neither been vaccinated nor had small-pox; three had previously passed through small-pox, and nineteen had been previously vaccinated. A girl, five years old, is reported on the books of the Dispensary to have been both vaccinated and to have had modified small-pox previously. In five cases no remarks were made, the patients having been lost sight of, and could not afterwards be found. All these cases occurred in children from six months to fourteen years of age.

There was generally some constitutional disorder, one, two, or three days before the appearance of the eruption. Languor, loss of appetite, hot skin, quick pulse, restlessness, thirst, and sometimes a short cough and sickness, were the precursory symptoms. Sometimes the eruptive fever was so mild as to be scarcely perceptible; and the children continued to follow their ordinary amusements during the whole course of the complaint.

When the fever was present, it usually abated or disappeared altogether as soon as the eruption took place; and in no instance was there any secondary fever.

Small red spots were observed, first on the face, hairy scalp, breast and back. These spots were soon elevated into transparent vesicles; their number increased, and they were afterwards seen dispersed over various parts of the body. Often a single day would complete their formation. What was a small red spot in the morning, became a yellowish-coloured transparent vesicle in the evening, and in the course of the following morning began to decline and shrivel. In this way fresh vesicles continued to arise and decline on different parts of the body for several days. As soon as those which appeared first had arrived at maturity, others began to show themselves. Very often there were several vesicles in different states of progress at the same time. In some cases, five or six days elapsed before all the vesicles had collapsed, and dried into scales or crusts. Though the general character of the eruption was its appearing in successive vesicles for several days, yet it differed a little in different individuals. Sometimes nearly all the vesicles arrived at maturity about one time, on the third or fourth day, seldom later than the fifth or sixth day. They then either dried up, or were burst, and their places were occupied by small brown crusts or scabs. The incrustations did not separate at any regular period. In two or three cases, where there was a copious eruption, a few vesicles became of a whitish colour, and appeared to suppurate imperfectly. They had a somewhat milky appearance, but could not be said to become pustular, and none of them were indented upon the surface. Some patients had very few pox, not more than six or eight, others had a great number, probably from three to four hundred. Five patients, who were unprotected either by small-pox or vaccination, had a copious, and three a scanty eruption; the remaining four had a moderate number of vesicles. A boy, nine months old, that had neither been vaccinated nor passed through small-pox, and was labouring under marasmus, had much eruptive fever, and numerous vesicles. The eruption ran the usual course. The marasmus was aggravated. The child lingered several weeks, and was carried off by diarrhœa.

The following is a brief history of the most severe case that came under my observation. A little girl, six months old, that had neither been vaccinated nor had small-pox, was restless, feverish, and had a tickling cough for three days, after which, small red spots, with a very slight degree of hardness and elevation, appeared on the skin over every part of the body. On the second day of the eruption, the spots had increased in number, and in the centre of some of them were small transparent vesicles. On the third day, there was an abundant eruption over the whole body. There were many small red spots, and several vesicles of a yellowish colour, with slightly inflamed bases. Three or four had a whitish appearance, as if they were becoming pustular. The child continued feverish, and very fretful. On the fourth day, several vesicles had collapsed and shrivelled, and some had dried into crusts. A few on the thighs were filled with straw-coloured serum. Two or three on the back had a whitish aspect, and were surrounded with considerable inflammation. There were several minute red spots, or points very slightly elevated, on various parts of the body, interspersed among the vesicles. Some of these spots afterwards rose into vesicles, and others disappeared.

The febrile symptoms now abated. On the sixth day, small brown crusts covered the places where the pox had existed. The crusts then began to separate, and on the tenth day most of them had fallen off. Six weeks afterwards there were a few small superficial marks upon the face and body, and two pits, resembling in some degree the pits after small-pox, on the back. After the scabs separated from the two last-mentioned places, ulcerations followed, which were a considerable time in healing, and left deeper cicatrices than usual.

It sometimes happened, that, after the vesicles had shrivelled and were broken, or after the scabs had been rubbed off, particularly on the back, or on any place where pressure had been made, inflammation and ulceration took place, but there was no sloughing, as after small-pox. These ulcers continued several days, or even weeks, and after they had healed pits or marks were left.

In a family of the name of Johnson, three children were affected with the eruption. William, the youngest, ten months old, had neither been vaccinated, nor passed through small-pox. He had a short cough, hot skin, and was sick, restless, and tedious. On Tuesday, the third day of this illness, small red spots appeared on the face and breast. On Wednesday, there was a great number of red spots on various parts of the body, and upon several of those which appeared on Tuesday there were small transparent vesicles. On Thursday, some of the vesicles had burst, and fresh vesicles showed themselves, some of which had a whitish appearance. They began to decline on Friday, and on Saturday were formed into crusts or scabs. Robert, seven years old, had been previously vaccinated, was only indisposed one day, and had a scanty eruption. Eleanor, five years old, had no eruptive fever; she ran about her amusements as usual, and had very few vesicles, which soon disappeared. Maria, aged thirteen years, was vaccinated when three years old, but did not take cow-pox, and she never had small-pox. This girl was inoculated in two places in each arm, with matter taken from her brother William on the fourth day of the eruption. On the second and third day after the inoculation, there was a little inflammation in two of the places, but it soon subsided, and was not followed by any fever or cutaneous eruption. The disease, except in one instance, was unattended with danger, and required no particular plan of treatment. It was of short duration, and nothing but a few doses of laxative medicine was administered. The case of marasmus, which proved fatal, was aggravated by varicella; but the patient's death could not be fairly attributed to the latter disease.

The epidemic I have described, could not, I apprehend, be considered as mild epidemic small-pox; for not one of the cases resembled small-pox in the symptoms, in the progress, or in the duration of the complaint. If it had been small-pox, undoubtedly some of the cases would have assumed the character of that disease, and have had a pustular eruption. It could not be considered as small-pox modified by vaccination, because the vaccinated and the unvaccinated exhibited similar symptoms, and it prevailed epidemically, independent of small-pox. Not a single case of small-pox had been met with in Carlisle, or in the neighbourhood, for several months previously. The disease exhibited the same appearances in those patients who had undergone neither cow-pox nor small-pox, as in those who had previously gone through both these diseases.

The first part of this paper shows that many cases of modified small-pox after vaccination have occurred in the practice of the Carlisle Dispensary within the last few years. In some respects the eruption bore considerable resemblance to the late epidemic, but I think the two complaints might be distinguished by the following symptoms. In modified small-pox there was generally more eruptive fever. The vesicles had more elevated bases; they often became pustular, and were also often indented in the centre. They were also larger, firmer, and longer in reaching maturity. The crusts were larger, and left deeper pits. In chicken-pox the vesicles advanced more rapidly, were never indented, and different vesicles were in different states of progress at the same time. In a great majority of cases there were no pits after chicken-pox, a yellowish or brownish coloured stain was all that remained on the skin after the crusts had separated, and those gradually disappeared. In a few cases the eruption was followed by large blotches and superficial ulcerations, which left broad but superficial marks, not like the deep pits after small-pox.

The writer of this sketch has no particular opinion or doctrine to defend. He is desirous for the investigation of truth, and has stated facts as they occurred. Although he has drawn conclusions from those facts opposed to the identity of small-pox and chicken-pox, he does not expect that this epidemic will determine the question of their identity. And he would wish that new facts and observations may be collected, in order that those conclusions may be either confirmed or confuted.

It may not be improper to state, that the summer was remarkably warm and dry. There was a longer continuance of hot and dry weather during this season than had been for many years previously. Typhus fever and acute contagious diseases were also less prevalent than for some years past.

November 7, 1826.

ART. XII.—*Case of Hæmorrhœa Petechialis, which terminated fatally; with the appearances on Dissection.* By ARTHUR KIFT, Assistant Surgeon, R. N.

GEORGE BEAUTHORP, ordinary seaman, aged 19 years. April 16, 1825.—He has recently entered his Majesty's naval service. His chief occupation has been that of a fisherman. His habits intemperate. He complained on the 16th of a catarrhal affection, for which a purgative and diaphoretics were prescribed, and continued till the 20th, when the following symptoms appeared:—Wandering pains in the limbs; skin hot; pulse quickened; tongue morbidly red. About the fauces there are efflorescent patches. He states he has spit some blood. For these symptoms he was treated with cathartics and diluents.

21st.—Much the same as yesterday; has cough, and expectoration of mucus tinged with blood of venous colour. Pain and weight about the upper portion of the sternum; gums swollen; ecchymosis about the mouth and fauces. Bowels freely purged.

Habeat Tinct. Digitalis gtt. xxx. Acid. Sulphurici dil. gt. lx. 4ta qq. h. sumend. To use lemonade as ordinary drink.

22d, *Mane.*—Countenance and skin of the upper extremity of a lemon colour. Over the breast there are several dark livid patches, from the size of a shilling to that of half-a-crown; on the lower extremities there are the same appearances. Gums continue swollen, and bleed. Mouth and fauces covered with small elevated points, from which blood oozes; difficulty in swallowing. Cough extremely troublesome, and comes on in paroxysms. Since yesterday, he has expectorated three pints and a half of viscid fluid, tinged with blood. The skin is hot and dry; the pulse hard and quick; the bowels reported free, but the urine scanty.

Omit. Digitalis et. Acid Sulph. &c. Mittatur sanguis a brachio ad ʒxii.

The blood of a purple colour, flowed freely, and with some difficulty was commanded. Syncope followed.

The blood drawn presents a firm, sizy crassamentum; the serum small in quantity.

Sterno applicetur emp. Lyttæ. Habeat Pulv. Antimonialis et Potassæ Nitratis āā. gr. viii. 5. qq. hora, &c. Continue lemonade.

Vespere.—Bowels are freely opened; stools natural; increase of petechiæ on the lower extremities.

23d, *Mane.*—The depletion of yesterday has relieved the chest. The cough and expectoration are lessened; the difficulty of swallowing increased; the voice hoarse; the mouth and gums bleed as heretofore; much despondency. *Cont. alia.*

Habeat Haust. Salin. effervesc. pro re nata.

Vespere.—Has perspired freely during the day, and feels relieved. *Haust. opiatus, h. s. s.*

24th, *Mane.*—Continues as yesterday.

Vespere.—The face is flushed; the appearance of the eye is wild; and he talks incoherently. The pulse is soft, less frequent.

Vespere.—Has strangury.

Cont. H. et habeat Haust. Æther. Nitrosi cum Opio.

25th, *Mane.*—Free from strangury; has slept well. Complains of headach. *Ol. Ricini, ℥i.*

Vespere.—Bowels moved; stools natural; again strangury.

Rep. Haust. Nitrosi cum Opio.

26th. The dark livid patches on various parts of the body are disappearing. There is no improvement of the mouth and fauces. During the night blood passed *per anum.* The pulse is feeble, and the debility great. Omit the antimonials.

Habeat Cinchona cum Acid. Sulph. dilut. 3tia qq. h. hauriend.

Vespere.—The fæces passed to-day tinged with blood, and also the urine. The pressure of the bandage used in bleeding has produced discoloration, and several large livid patches. From his lying on the right side there is a general discoloration of the surface.

Continue the *Cinchona—Bolus e. Calomel. h. s. s.*

Thirty minutes past 10 A. M.—Has passed about six ounces of deep blood-coloured urine, attended with excruciating pain. Complains of pain on pressing the hypogastrium, but there is not the slightest tension. Pulse small and wiry.

Mittatur sanguis e. brachio ad ℥vii.

The blood drawn highly florid, crassamentum firm, sizy; serum small in quantity. The pulse rose and fell in frequency. Omit the Cinchona. Warm fomentations to the pubes.

Habeat haust. Salin. cum Tinct. Digit. 4ta qq. h.

17th, *Mane.*—Has slept some hours; perspired freely; bowels moved four times; the fecal matter mixed with blood; urine as yesterday. Over the breast there are yet some dark-coloured patches; those on the extremities are disappearing. The skin is hot and dry; pulse slow and full. On examining the mouth and fauces, there is a general dark appearance; and blood oozes from all parts and coagulates. Cough continues, but free from pain or weight in the chest.

Continue saline mixture and digitalis.

℞ *Magnesiæ Carbon.* ℈*ij. Sulph. Magnesiæ* ʒ*ii. 6ta qq. hora, S.*

28th, *Mane.*—During the early part of last night blood was passed involuntarily *per anum.* The bowels are free; stools at present untinged with blood, and the urine is less bloody. The gums and mouth bleed less; petechiæ about the forehead; right upper extremity much discoloured from pressure; skin continues hot and dry.—Continue remedies as yesterday.

Vespere.—Symptoms continue as above noted. Sponge the surface with tepid water.

29th, *Mane.*—On the whole is improved. Countenance has a lively appearance; urine continues of blood colour; stools of dark clay colour. Continues the saline and digitalis, as also the powders; substituting the cream of tartar for the carbonate of magnesia.

30th, *Mane.*—Bowels freely purged; urine increased in quantity, colour as before. There is fulness and hardness in the right hypochondrium, but no pain on pressure.

A consultation was held. The result was, that the foregoing treatment was recommended to be laid aside, and a mercurial one substituted.

This was attended to. Ptyalism was effected. Hemorrhage returned as before described, and he sunk on the 4th of May.

Dissection. In the cavity of the thorax there was a livid spot near the apex of the heart, about the size of a sixpence.

In the cavity of the abdomen the stomach and alimentary tube empty, and of a livid appearance; the villous coat diseased, thickened; here and there gangrenous (dark-coloured from effused blood?) spots. This was particularly the case with the rectum.

Circumstances of a peculiar nature prevented a more minute examination.

The morbid appearances clearly point out that a depletory plan of treatment, carried to a greater extent than above adopted, would have probably afforded a better prospect of success.

H. M. Cutter Surly,
Sunderland, April 17, 1826.

Art. XIII.—*Case of Nervous Disease successfully treated by Dr Hamilton's Plan, aided by Local Counter-Irritation.* By William Belcher, M. D. Licentiate of the College of Surgeons of Ireland.

Mrs R. aged 32, a delicate married female, was attacked on the morning of Saturday, November 12, 1825, with pain and general soreness of the whole right side of the trunk and extremities; a tingling sensation in the index finger and thumb of the right hand, shooting up along the fore-arm; and immediately afterwards, general numbness and inability to move the right hand, arm, or shoulder. In a short time the muscles of the hand, fore-arm, arm, right side of neck, head, and face, became convulsed, the face distorted, the mouth drawn to that side, and head drawn towards the shoulder, and half rotated violently. These irregular convulsive movements were repeated without intermission for twenty minutes, and were entirely confined to the right side. She was for a short time insensible during the paroxysm, and her feet and ancles were remarkably cold. The face was flushed, particularly the right cheek. The right arm had an appearance of general swelling, and the integuments were redder and more tense than natural. As soon as the paroxysm terminated, she appeared much exhausted, and was bathed in perspiration.

Sunday, November 13th.—She had no paroxysm since the first, yesterday; but her arm and hand, from the shoulder downwards, have been in a perfect state of paralysis. At eleven o'clock in the forenoon of to-day, had a second paroxysm of shorter duration, (fifteen minutes) with diminished intensity of symptoms. As she was perfectly sensible and capable of answering questions during the muscular convulsion, this second attack greatly alarmed her friends, who, to use their own expression, never had seen such a dancing disease before; and made some superstitious bystanders imagine her possessed of an evil spirit. I was therefore summoned to attend her at two o'clock in the afternoon. I had been but a few minutes at her bed-side when another paroxysm ensued, which gave me an opportunity of accurate personal observation as to her case. The same muscles, as in the first attack, were affected, the flexors appearing to be principally engaged in the hand and arm, the sterno-mastoid in the neck. This lasted fifteen minutes. I asked her if she was capable of stopping the convulsion by voluntary exertion. She tried, but could not. Her head, neck, and arm, were involuntarily dragged and knocked about, as she expressed. She felt no very acute pain during each attack; and at its termination she was much exhausted; the face and forehead bedewed with perspiration; the hand and arm still paralyzed, and feet cold. To my inquiries into her previous state of health, she informed me that she had been of a delicate habit, had no children, was constipated, latterly very much so. For the last two months has had catamenial obstruction, with lumbar pains; impaired appetite; bitter taste in the mouth; furred tongue; and pulse quite unaffected. On examining the abdominal parietes, I found the ascending, transverse, and descending colon, even to its sigmoid flexure, so distended with feculent matters as to be anatomically traced in its whole course. The epigastric region was uneasy and tender on pressure. Under those circumstances I hesitated not a moment to imitate the practice of the well-known author of the work on Purgative Medicines, and prescribed an active bolus of ten grains of calomel, with twenty of jalap, to be followed, every two hours, with a wine-glassful of senna infusion and Epsom salts, until the colon was in some degree unloaded. Warm bricks, enveloped in flannel, were ordered to be applied to the feet to restore their natural heat. At three P. M., an hour after I left her, she had another, and at nine P. M., a very severe paroxysm. When visited on Monday, November 14th, at twelve o'clock, she has had no attack as yet. The purgatives operated four times, bringing away an enormous quantity of indurated scybala, with fetid, unhealthy, biliary, and intestinal secretions of a pitchy colour and consistence.

Repetatr. bolus tertia quaque hora et mist. purg. ut antea. The arm from the shoulder down to be rubbed well with antimoniated ointment, until pustular eruption appears.

Tuesday, November 15th.—At 10 A. M., I was gratified to find that she had but one slight paroxysm since the evening before. Has passed six copious scybalous and pitchy stools. Epigastric tenderness has disappeared; has had a slight appearance of catamenia this morning. *Pergat. in usu bolor. mist. et ung. ant. tart.*

Wednesday, November 16th.—Visited at 11 A. M. Has had one short paroxysm, of ten minutes duration, since yesterday. Medicines brought away eight pitchy stools; abdominal tumefaction reduced; arm and hand still paralyzed; pustular eruption appearing. *Pergat. in usu bol. mist. et ung. ut antea.*

Thursday, November 17th.—At this morning's visit found her salivated from the bolus. She had two returns of the attack last evening. Flexors of the fingers have been unceasingly convulsed since yesterday. Bowels still discharging dark bilious unhealthy matters. Omitted the boluses, in consequence of ptyalism appearing. Directed a bark and mineral acid gargle to be used frequently for the mouth. The mixture to be continued; and, in place of bolus, to keep the catharsis up, a terebinthinate enema every four hours. In the evening she had three paroxysms, with but a short interval between each; and at the termination was much exhausted, and her face bedewed with perspiration.

Friday, November 18th. 11 A. M.—At visit to-day, bowels still discharging unhealthy matters, not unlike tar; mouth benefited by the gargle; contraction of fingers still continues incessant; eruption out on the arm. She had no paroxysm since last evening. Directed a blister over the situation of the convulsed flexors of the fingers in the fore-arm; a five grain pill of equal parts colocynth extract and blue pill, with one grain of calomel every third hour, followed by small doses of the senna mixture, with the intention of acting regularly on the hepatic and intestinal secretions.

Saturday, November 19. 11 A. M.—Yesterday passed over without an attack. The stools to-day considerably improved in appearance, exhibiting traces of bile. Blister has risen well; startings of finger less frequent; mouth nearly well. *Continr. pil. et mist.*

Sunday, November 20th.—Has had no attack since Thursday evening; convulsive startings of fingers have subsided; sensation and voluntary motion have returned in the shoulder and arm; abdominal enlargement reduced; catamenia returned this morning copiously; tongue clean and moist, and stools assuming their natural aspect. Continue the pill and mixture regularly, which appear to have had a most decided and speedy effect in restoring the hepatic and intestinal secretions, after the canal had been cleared of its enormous contents. Up to the 24th she became convalescent, feeling herself quite a new individual, her various functions better performed than for a long time previous to the date of her attack; and, from the good health she at present enjoys, there is very little probability of a relapse, without being preceded by some of those functional derangements which appear to have been the exciting causes of her attack.

Observations.—The phenomena exhibited in this recent case of chorea, so perfectly coincide with the admirable description and treatment of the venerable Dr Hamilton senior of Edinburgh, that I trust it may appear not unworthy of preservation in the pages of this Journal. As far as one clinical fact can go, it decidedly supports his doctrines and treatment of this rare and singular affection. The obstinate constipation, catamenial obstruction, hepatic and intestinal functional derangements, evidently show them to be the exciting causes of the disease in this case, whatever may have been the immediate proximate ones. The local counter-irritation, established by means of Dr Jenner's antimoniated ointment, followed by the blister, probably was of considerable assistance in restoring the paralyzed state of the muscular powers of the arm and fore-arm to their healthy action.

Mr R. Hunter of Glasgow, who has recently applied this method of local counter-irritation, with success, in an obstinate and long-continued case, which had resisted every other method of treatment, attributes the cure alone to the use of the ointment rubbed over the shaven scalp, and along the course of the vertebral column. (See Edinburgh Journal, April 1825.) Though Mr Hunter was fortunate in so successful an issue, I cannot help thinking, if his case exhibited similar phenomena of functional derangement to the above, that all the counter-irritation he could effect would be of little avail, if he had not previously had recourse to the efficacious treatment of Dr Hamilton. The purgative plan has indeed sometimes failed; but, in the majority of cases of failure, the medicines have been inefficiently exhibited, arising from the extraordinary prejudice of many practitioners of the old school against active and repeated doses of purgative medicine. The opposite plan of treatment, by tonics and antispasmodics, has been far more unsuccessful, scarcely producing a radical, and seldom a palliative effect. In the case before stated, as soon as the alimentary canal was well cleared, and the hepatic secretion restored, the disease began to yield, and in a few days vanished. The catamenia returned, the appetite improved, the patient felt, as she expressed, quite a new individual, and rapid convalescence followed.

The rarity of this disease is remarkable. The late experienced Dr James Gregory states, in his lectures, that he had only met with seven cases, and Dr Hamilton senior, in his long practice, has only met with twenty. I have seen two only myself previous to this, and they were cured most satisfactorily by the purgative plan. I confess I think Mr Hunter's proposal of local counter-irritation in this disease a valuable addition to our treatment, the purgatives being premised. The late Dr Chisholm, a valuable writer on Tropical diseases, met with a few cases of chorea. Four occurred to him at the Clifton Dispensary, and the same number in private practice. The purgative plan had a fair trial, but failed. He continued the purgatives, and applied blisters repeatedly to the sacrum. After the third application, the spasms uniformly ceased. Six cases were cured. This, though not new, has been very seldom employed, and I think will afford the practitioner a valuable succedaneum in case of the failure of other measures.

Dr Manson of Nottingham found iodine beneficial in many cases, and in some a perfect cure was obtained by its use; but I strongly suspect the success of this practitioner has been mainly owing to the purgative medicines which he had previously used. He appears to have met with an unusually large number of cases, as he states that seventy-six have been treated in the general hospital of that city, within the last twelve years, (twenty-two males and fifty-four females.) I cannot conclude without expressing my conviction, from what I have observed, of the utility and soundness of the practical principles inculcated by the experienced author of the work on Purgative Medicines in this rare and obstinate disorder.

Baudon, Dec. 1, 1825.

ART. XIV.—*Case of Epilepsy, cured by Purgative Medicines.* By WILLIAM GUNN, Surgeon, Swiney, Caithness.

25th March 1826.—W. M. an athletic lad, aged 20, of a fair complexion, formerly enjoying perfectly good health, was seized upon the night of the 22d current, while asleep, with an epileptic fit, which continued very severe for more than half an hour. He remained weak, and in a state of stupor for some considerable time after the convulsions ceased. To remove these symptoms, he was bled copiously, and a large blister applied the following morning between the shoulders, which rose well. The paroxysm returning this morning with equal severity, I was requested to visit him. Upon my arrival, I found that the convulsions had ceased, and that he was then lying in a comatose state, with symptoms of accumulation of blood in the head; his breathing laborious, and a little foam at the mouth: pulse 96, full, and hard. The pupils were natural, but there was much redness of the eyes and face, and throbbing of the temporal arteries. The tongue was covered with a dark crust; the bowels inclined to constipation for some time past; the appetite impaired since the first attack, but was always good before then, and skin hot. During the paroxysm, the superior and inferior extremities were equally affected with violent convulsions.

I bled him to the extent of twenty-four ounces, and applied a blister to the nape of the neck. I also administered a bolus, containing a scruple of the compound extract of colocynth, and ten grains of calomel, and left half-a-dozen of powders, containing each five grains of calomel, with directions to take one every hour, until the bowels were freely moved. His feet I ordered to be bathed immediately with warm water, and left sinapisms to be afterwards placed on the soles. The blister, which was applied upon the morning of the 23d, is still discharging well. Ordered light diet and toast—water for drink.

℞ *Pulv. Valerian.* ℥*ss. Fiant hujusmodi pulv. xii. Sig.* One to be taken thrice daily.

26th.—No return of the fit since yesterday. Took the whole of the calomel powders I left with him, in all, forty grains in seven hours, which produced one full alvine evacuation of a brown colour, partly fluid, partly lumpy, and particularly fetid. Slept soundly last night; appears to-day quite tranquil, and has complete command of all his limbs. Pulse 80, good. Tongue furred, and complains of a bad taste in the mouth. Skin a little hot. No flushing of face present, and eyes appear natural. The blister to the nape of the neck rose well, and the one between the shoulders is still discharging. The blood was somewhat buffy.

℞ *Pil. Colocynth. Comp. xxx. Sig.* Two to be taken every hour until well purged. *Cont. Pulv. Valerian.*

27th.—The paroxysm returned this morning while asleep in as severe a form as before. Took sixteen of the pills, which produced three fetid evacuations of the colour of pitch. Complains at present of pain in the head, and appears weakened by the severity of the convulsions. Pulse 86, weak; tongue still covered with a dark crust; skin hot; no flushing of the face; blister between the shoulders healing. Let eight compound colocynth pills be taken at bed-time, and two ounces of the sulphate of magnesia in the morning. Mouth a little affected by the calomel.

28th.—Has had no fit since last visit; complains of nothing to-day excepting weakness; slept well last night at short intervals, but he is always afraid to sleep in case of another attack. Pills and salts taken; five stools to-day of the same appearance as yesterday. Pulse 76; tongue still foul; skin hot and dry. Four pills to be taken at bed-time, and an ounce of salts tomorrow morning. Discontinue the Valerian powders.

29th.—Had two fetid evacuations to-day, lumpy, but not so dark as formerly. Has had another violent attack last night; the convulsions were so strong, that it required several persons to prevent him from injuring himself. His mind seems much troubled on account of the recurrence of the fit. Pulse 78; tongue foul. Complains still of a bitter taste in the mouth; feels much thirst. No flushing of the face at present, but he experiences vertigo and pain in the head. Blisters have healed. *Rept. pil. Colocynth. comp. xxiv. Sig.* Six to be taken to-night at bed-time, and two ounces salts in the morning.

30th.—Has had no attack since last report. Physic operated well, and brought away six black fetid stools, partly fluid and partly lumpy. Has no particular complaint to-day; slept well last night. Pulse 76; tongue furred, and a bad taste is felt in the mouth. Appetite still bad; less thirst than formerly. Four pills to be taken at bed-time, and an ounce of salts to-morrow morning.

31st.—The pills operated twice early this morning, so that the salts were not taken. The stools were not so dark as formerly, but still fetid. Has had another convulsive attack this forenoon, which, however, did not continue so long as any of the former, though equal to them in severity. Was not asleep as formerly when this fit came on. Pulse 72; tongue cleaner, though still furred; skin cool; slept well last night; very little thirst. Four pills to be taken to-night at bed-time, and half an ounce of salts in the morning.

1st April.—The pills and salts were taken as directed, which operated well, and brought away four dark liquid stools, still fetid, but much less so than formerly. Slept well last night. Has no particular complaint to-day. Pulse 72, good; tongue cleaner; skin natural. Four pills to be taken to-night at bed-time, and half an ounce of salts in the morning if required.

2d April.—The pills operated well this morning, so that the salts were not taken; the first feces appeared green, the latter of a natural appearance. Pulse 70, good; tongue clean. Slept well last night. No bad taste is felt in the mouth. Three pills at bed-time, and half an ounce salts in the morning if required.

3d April.—The pills were taken at bed-time, but having no effect, the salts were given, which produced full alvine evacuation, feces consistent, formed and of a natural appearance. Appetite much improved. Free of ailment. *Rept. pil. Colocynth. comp. xviii. Sig.* Two or three to be taken occasionally, so as to keep the bowels regularly open.

In this case the first purgative medicines given to the patient were the same as those employed by Mr Abraham of Worcester in his case of sanguineous apoplexy, published in the eighty-fifth number of this Journal; but finding them insufficient to produce the requisite evacuations, I substituted in their stead the compound colocynth pill and the sulphate of magnesia, which answered the purpose more effectually. The only further observation necessary to be made is, that the epileptic affection originated wholly in the disordered state of the bowels. It is also proper to remark the large doses of medicines which required to be given before evacuations could be produced, and the rapid amendment of the disease as the digestive organs were restored to their proper state of acting. The patient before that time never had an attack of epilepsy, nor has he had any since.

Swiney, 24th July 1826.

ART. XV.—*Case of Malconformation of the Bladder and the Organs of Generation.* By HENRY VERNON, M. D.

AN infant, three days old, was brought to me for examination, by a midwife of this place, having a strange-looking tumour immediately below the umbilicus, and whose organs of generation were in a very defective state. It was a male child, and in other respects fine and healthy looking.

The tumour at first sight appeared to be of a fungous kind; it had a pear shape, and extended from below the umbilicus to the pubes.

On a closer examination, however, it was ascertained to be formed of the internal membrane of the bladder, the orifices of the ureters opening into the lower part of it a little distance from each other, from which the urine could be seen trickling down, and soaking quickly the cloths with which its belly was bound. They were sufficiently wide to admit a blunt probe, which could be pushed up nearly three inches towards the pelvis of each kidney. The penis was merely a soft, red, and flat glandular-looking substance, about half an inch in length, with a thick doubling beneath, resembling a prepuce; a furrow ran along its upper surface, into which two orifices opened at about the middle of it, separated by a caruncula. These no doubt were the extremities of the ejaculatory ducts with the *caput gallinaginis*. It appears as if the penis, with its integument dissected off, had undergone a longitudinal section on a level with the urethra. The crura penis could be plainly seen diverging towards the tuberosities of the ischium.

As the child is still living, and likely for life, I have not had it in my power to examine the state of other parts, as the *vesiculæ seminales*, &c. The testicles have descended into the scrotum.

The malconformation is one of those in which the anterior half of the bladder is wanting, the posterior and only portion of it being protruded in a globular shape by the intestine situated behind it, and forming a tumour which occupies the room of an equal portion of the abdominal parietes, which are wanting in these cases.

It would also appear that the penis shared in this sort of deficiency, or the same that would result from a longitudinal section commencing at the fundus of the bladder, and continued to the extremity of the glans penis.

Bury, Lancashire.

NOTE.—*Reply to the Observations of Mr J. Irving, Surgeon, Annan,* (vide Number for July 1825,) *on a Case of Malignant Tumour, &c. &c.* By J. F. NIVISON, Assistant Surgeon, Fifth Regiment.

BEFORE leaving the island of St Kitts with a detachment of the Fourth Regiment, I read Mr Irving's observations on my report, (vide Number for April 1825); and I beg to state, for his information, and that of the readers of the Edinburgh Medical and Surgical Journal generally, that I am sorry I published the case contrary to his knowledge and concurrence. From a short conversation I had with Mr Irving, (after leaving the residence of my friend, Mr R. Johnston, R. N,) regarding the disease and operation being worthy of publication, I was led to draw the conclusion that Mr Irving had no intention of publishing his observations and practice on the present occasion, on account of his professional avocations. I then asked him a few questions touching the history of the disease, which he kindly answered. The operator's name in my report would have been explicitly stated, but I thought I was treading on delicate ground if I did so without first obtaining his free sanction for so doing.

I may have overrated the force used in the dislodgement of the tumour from its connections, but I certainly think a degree of force was employed, but its application was judicious, and guided by anatomical knowledge.

I confess I may be wrong in stating that Mr Irving was assisted in detaching the tumour, and beg to say in my defence, that I took no notes at the time, but wrote out my sketch for the Journal long after the operation.

In conclusion, I regret much my incorrect conclusions should have deprived the profession of a minute and detailed account of the disease in the different stages of its progress.

Fort Cumberland, Portsmouth,
8th June 1826.

PART II.

CRITICAL ANALYSIS.

Art. I.—1. *Recherches tendantes à prouver, &c. Researches tending to prove that Chronic Inflammation of the Cerebral Vessels performs a principal part in the production of Apoplexy.* By M. Bouillaud, D. M. P., Resident Member of the Medical Society of Emulation of Paris. From the Memoirs of the Society, Vol. ix. Paris, 1826, p. 147.

2. *Observations sur la Rupture, &c. Observations on the Rupture of Aneurisms of the Arteries of the Brain.* By M. Serres, Physician to the Hospital de la Pitié. From *Magendie's Journal of Experimental and Pathological Physiology,* Tom. vi. January 1826, p. 82.

THESE articles contain some observations on certain points of the pathology of apoplexy, which, if well founded, cannot fail to throw some light on the organic causes concerned in the formation of that disease.

Apoplectic symptoms are known to arise from various states of the brain, or of its parts. It is now, however, regarded as most expedient to restrict the appellation of apoplexy to that state of the vessels of the brain, in which they are either unusually and excessively distended with blood, or in which this fluid has escaped from one or more vessels, either by exhalation or by rupture. Of the first sort of vascular disorders, or that by injection or congestion, we are not at present to speak. For though there is neither doubt of its existence nor of its frequency, both the authors before us limit their observations to cases in which effusion of blood has actually taken place.

M. Bouillaud begins by limiting the appellation of apoplexy to cases of actual hemorrhage only, and by stating that his object is to connect the doctrine of apoplexy with that of hemorrhages in general. We must be allowed to say at once, that the proposition advanced in this avowal is not at all essential to his theory; and that, even admitting its truth in the fullest and most unconditional manner, the doctrine of apoplexy which he delivers, would by no means be capable of being connected with that of hemorrhagy, from internal or spontaneous causes at least.

Admitting, therefore, the symptoms of apoplexy to depend in many instances on the effusion of red blood from the cerebral vessels, a very natural inquiry is, to discover the particular circumstances on which the hemorrhage depends. It may, as in other hemorrhagic diseases, be the effect of exhalation, and this again must be ascribed to previous injection and distension of a particular order or orders of vessels. In other instances it may be the effect of rupture or laceration; and this suggests the inquiry into the circumstances on which the rupture depends. The determination of this point may be said to be the principal object of M. Bouillaud.

The doctrine maintained by M. Bouillaud is briefly the following. It is generally known that the disease termed true aneurism by Scarpa, and false aneurism by the French pathologists, arises in most cases from previous organic change in the arterial tunics, which become lined with caseous, atheromatous or calcareous matter, and invariably become so brittle as to lose their wonted elasticity, and to give way by dilatation, extenuation, erosion, or rupture. M. Bouillaud has laboured to demonstrate that these several organic changes must be ultimately ascribed to inflammatory action of the arterial tissue, more or less chronic and latent. He takes particular pains to show in his work on diseases of the heart and large vessels, that inflammation of the aorta, when it has become chronic, is attended with all the organic changes to which Scarpa justly ascribes the formation of spontaneous aneurism, or that by rupture of the proper coats of the vessel. Having come to this conclusion regarding the aorta, he applies it to the arterial system in general; and contends, that if it appears from diligent clinical observation, that the earthy, calcareous, atheromatous and ulcerative degenerations of arteries are the result of inflammation of the arterial tissue in one case, it must then follow that the inflammatory process performs a most important part in the formation of those aneurismal tumours which depend on internal causes.

Having premised these general observations, M. Bouillaud infers, that, if he can prove that in cases of apoplexy the arteries of the brain are previously affected with the several organic changes already mentioned, it will reasonably follow, that inflammation of these arteries exercises great and remarkable influence in the formation of apoplexy or hemorrhage of the brain. If the bodies of persons cut off by apoplexy are examined with the requisite attention, we shall speedily obtain numerous and convincing proofs, according to M. Bouillaud, that the organic changes to which we now allude are precisely those which are most uniformly seen in the brains of the apoplectic.

Of the doctrine now stated, which embraces several individual points, one part is so well established, that nothing is left to M. Bouillaud but the merit of giving it greater stability and precision than it previously possessed. We allude to the connection remarked almost invariably, and by a great multitude of authors, between hemorrhage of the brain, and more or less disease of its arterial system. The observations made long ago by Morgagni and Lieutaud leave no doubt of the fact of this connection, which has more recently received, if possible, stronger confirmation from the testimony of Baillie, in his Morbid Anatomy, and Hodgson, in his Treatise on the Diseases of Arteries and Veins. "When extravasation happens within the cavity of the cranium," says the former author, " without external injury, the vascular system of the brain is almost always diseased. It is very common, in examining the brains of persons who are considerably advanced in life, to find the trunks of the internal carotid arteries, upon the side of the *sella turcica*, very much diseased; and this disease extends frequently more or less into the smaller branches. The disease consists in a bony or earthy matter being deposited in the coats of the arteries, by which they lose a part of their contractile and distensile powers, as well as of their tenacity. The same sort of diseased structure is likewise found in the basilary artery and its branches. The vessels of the brain, under such circumstances of disease, are much more liable to be ruptured than in a healthy state. Whenever blood is accumulated in unusual quantity, or the circulation is going on with unusual vigour, they are liable to this accident; and, accordingly, in either of these states, extravasations of blood frequently happen."

No rational doubt, therefore, can be entertained of the general fact, that, in apoplexy from effusion of blood, the cerebral arteries are often diseased. It is, however, a much more difficult task to trace the connection between the morbid change in the arterial tubes, and the apoplectic hemorrhage, and to point out the particular circumstances which indicate this connection to be accidental and contingent, or necessary and uniform. Whatever opinion shall be entertained regarding the degree of success with which M. Bouillaud has attempted to trace this connection, it cannot be doubted that the pathological inquirer must feel grateful to this physician for bringing under his observation the general facts which tend to support a doctrine of no ordinary importance in the pathology of cerebral disease. What Morgagni, Baillie, and Hodgson have stated in the form of general and merely probable propositions, is supported by M. Bouillaud on the evidence of individual and well-marked facts. To enable the reader to estimate the soundness of his opinions, he collects from various sources the details of seven fatal cases of apoplexy, in which one or more of the arteries of the brain were diseased, ruptured, or lacerated, so as to allow the escape of a considerable quantity of blood.

His first case, from the letters of M. Lallemand, occurred in the person of a woman of sixty, who, after the preliminary symptoms of apoplexy, was affected with palsy of the right side, and died on the thirteenth day of her disease. The middle of the left *corpus striatum* contained an effusion, or an infiltration of blood, and all the arteries of the brain were ossified.

In his second, a woman of seventy-three, much addicted to spirituous liquors, was attacked with apoplectic symptoms, and expired during the night between the second and third days. Besides general injection of the right hemisphere, and an apoplectic cavity, containing much dark-coloured coagulated blood, the basilar artery, and those of the brain in general, were sprinkled with numerous whitish calcareous specks, which communicated a gritty sensation to the knife.

These two were examples of organic change in the arterial tunics; in which, though blood was effused, rupture, or breach of continuity, was not distinctly observed. The next four cases afford examples of visible rupture, with or without aneurismatic dilatation in one or other of the arteries of the brain. Three of these cases, the third, fourth, and sixth, were formerly published by M. Serres, in his Memoir on Apoplexy, in the *Annuaire Medico-Chirurgicale* of the hospitals and institutions of Paris; and one of these is again republished by the same author in his paper now before us.

One occurred in the person of a man of fifty-six, and is an example of apoplexy from effusion of blood, proceeding from laceration of the internal carotid artery, at the end of the sylvian fissure, where the artery divides into the anterior and middle branches. Though M. Serres makes no mention of disease of the arterial tunics in this case, M. Bouillaud reasonably enough thinks, that the existence of the rupture implies the previous existence of organic change in the artery. (*Annuaire Medico-Chirurgicale*, p. 308–310.) The second of these cases occurred in the person of a man of fifty-nine, and affords an example of apoplexy from blood which had been effused into the ventricles and base of the brain, from the rupture of an aneurismal tumour of the basilar artery.

The aneurismal pouch was about an inch in diameter, rounded, a little flattened at its upper surface, and might be as large as a small pigeon's egg. It had given way at the outer margin by a small circular opening, about a line and a half in diameter, and discharged nearly a pound of blood. *(Annuaire*, p. 314, and *Journal de Physiologie Experimentale et Pathologique.)*

The third case, republished by M. Bouillaud from the same work, is that of a huckster-woman, who was brought to the Hotel-Dieu in the agonies of death. After drinking for a bet seven litres (more than twelve imperial pints) of wine, without eating, she fell down motionless, and expired seven hours after. The basilar artery was found burst at the point where it is formed by the union of the two vertebral arteries, one of which was entirely detached from the basilar, while the other hung by a narrow ragged slip. The blood which escaped filled the base of the cranium, forming a thick layer, moulded on its inequalities.

The last case quoted by M. Bouillaud is from the work of Mr Hodgson, and as it is described fully by that author, (p. 76,) it is superfluous to repeat it here. It is sufficient to say, that after the usual signs of apoplectic death, a copious effusion of blood was found below the arachnoid coat, at the base of the brain; and that this blood was found to have escaped from an aneurismal sac, as large as a horse-bean, communicating with the basilar artery, where it divides into the cerebellic and posterior cerebral branches.

The work of the same author might have furnished M. Bouillaud with another example, illustrating the same general fact of apoplectic hemorrhage from disease, not only of the large arteries at the base of the brain, but of the small ramifications on the *pia mater*.* The possibility of this occurrence, indeed, which is thus admitted by Hodgson, is placed beyond doubt by M. Bouillaud, who adduces from De Haen an example of cerebral hemorrhage, from the vessels which are distributed through the choroid plexus. An old man, much addicted to wine, was struck with apoplectic symptoms during a fit of intoxication, and died two days after. The vessels of the *pia mater* were so dilated, that they appeared aneurismatic, not only at the surface, but in all the cerebral anfractuosities at the circumference and at the base of the hemispheres; and the left ventricle contained much grumous blood, which had issued from a rupture of the choroid plexus.

It will complete the series of facts now adduced, if we notice one more case, recorded in the essay of M. Serres, in addition to the second already republished from the essay of the same author in the *Annuaire*. A woman of fifty-three, pursuing the occupation of a merchant, fell down without sense and motion, on the morning of the 3d January 1826. Notwithstanding the use of remedies, she continued much in the same condition for three days, when she expired on the morning of the sixth. Dissection showed a large and extensive layer of coagulated blood deposited between the arachnoid membrane and the *pia mater*, enveloping the commissure of the optic nerves, extended along the *crura* of the brain, and the *fossa* of the oculo-muscular nerves, to the middle of the annular protuberance, to the outline of the hemispheres, and even penetrating by the great posterior fissure into the middle and lateral ventricles. This blood had escaped from an oblong aperture, in an aneurismal sac of the right anterior communicating artery, as large as a pistol-bullet, and from an opening in the extremity of the left anterior cerebral artery.

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* Treatise on the Diseases of Arteries and Veins, &c. p. 26, Case IV.

From these and similar facts M. Bouillaud draws inferences, which will appear more or less legitimate to different observers, according to their opportunities of pathological research. He concludes, in the first place, that apoplexy is a disease of the vascular system of the brain, rather than of the organ itself. Generally speaking, we conceive this to be so true, that the author can claim no other merit, than that of announcing to his countrymen a fact which has been familiar to us since the days of Willis, which was converted into a solid and substantial principle in the hands of Cullen, and which received the most undeniable confirmation from the researches of Portal and Rochoux in France, and from those of Baillie, Cheyne, and Abercrombie, in this country. When it is remembered how difficult it is to adduce examples of genuine and unequivocal apoplexy, from direct impairment of nervous energy, or of what is termed *nervous apoplexy* by ZULIANI, KORTUM, KIRKLAND, and ABERNETHY, it will not be regarded as a proof of too extensive generalization to maintain, that apoplexy consists in an affection of the vascular system of the brain only.

It is not, however, so easy a matter, to reduce to uniform and general principles the varieties of affection of the circulating system of this organ, on which the apoplectic symptoms depend. Almost every thing hitherto learnt on the sound and on the deranged states of the cerebral circulation, shows that not one but several of them may operate in producing apoplectic, comatose, and lethargic symptoms; and that it is impossible to frame a specific definition of the state of the cerebral vessels, which shall embrace every possible case and variety. When, after apoplectic symptoms terminating fatally, blood is found on the surfaces or in the substance of the brain, it is natural to ascribe this to rupture of a blood-vessel, precisely as hemoptysis is popularly supposed to depend on rupture of a vessel of the lungs. But, however easy it appears to account for the presence of the hemorrhage in this popular manner, it is found very difficult, in many cases absolutely impossible, to demonstrate the rupture thus hypothetically assumed. Not to mention the negative evidence, of the difficulty of establishing this as the general, or even the occasional cause of hemorrhage, to be found in the writings of Wepfer, Morgagni, Portal, and Rochoux, we shall have occasion to show that Cheyne, the most accurate observer of the anatomy of apoplexy in modern times, succeeded in two cases only in tracing blood-vessels into coagula, but in none could he prove rupture. (Cases of Apoplexy and Lethargy, p. 108.)

M. Bouillaud has been more fortunate than his predecessors in pointing out the particular affection of the blood-vessels concerned in the production of apoplexy; and he thinks himself warranted in ascribing cerebral hemorrhage to that morbid degeneration of the arterial tunics, in which they become indurated, inelastic, and brittle, from deposition of caseous, atheromatous, or calcareous matter; and in consequence of which they give way, either by ulceration, erosion, or laceration. These, M. Bouillaud contends, are the primary circumstances concerned in the production of apoplexy, and the effusion of blood is the mere consequence, or secondary effect. Throwing aside the distinction established by Scarpa, between true and false aneurisms, he regards these organic changes in the arterial system of the brain, as leading, invariably and uniformly, to aneurismal dilatation, and subsequently to rupture and hemorrhage. "Thus, then," he concludes, "apoplexy is not a specific disease *sui generis.* It consists, essentially, in an organic alteration of the arterial system of the brain, similar to that which is observed in the disease improperly designated under the name of aneurism."

Upon the merits of this conclusion, various opinions will be entertained. However certain it may be that apoplectic effusion is often connected with organic change in the arterial tunics, it cannot be denied, that many cases of apoplectic effusion have taken place, in which the cerebral arteries were free from disease, at least of their coats. Thus, though Morgagni admits the connection, yet he records various examples of cerebral hemorrhage giving rise to apoplectic signs, in which no mention of diseased arteries is made. The conjecture regarding aneurism in the brain of the celebrated Ramazzini, as the cause of death in that physician, is a mere supposition, resting on analogy only;—for the head was not examined. We shall not pay much attention to the opinion of Portal, who, though obliged to admit the fact, thinks ossification, or aneurism of the carotid and cerebral arteries, more likely to produce syncope than apoplexy. But we must not omit to observe, that Rochoux, the author of one of the most elaborate treatises on apoplexy in modern times, amidst not fewer than forty-four fatal cases of apoplexy, has only once remarked the fact of disease of the arterial tunics, (Case 42.) By Cheyne, though its existence is admitted, its influence is denied; and, while he justly disapproves of the inferences drawn by Morgagni from the case of Ramazzini, he shows, from the examples which he had dissected with attention, that blood proceeds not from one, but from many vessels, and that it is a disease, not of the large, but of the minute arteries; and though he mentions enlargement of the carotid and vertebral arteries, he never notices disease of their coats. It is remarkable, also, that of the fatal cases of apoplexy, in one only could he discover any thing like actual rupture, and in that, no mention is made of disease of the tunics; and in one only, (the 23d) are the arteries at the base of the brain said to be sprinkled with opaque white spots; yet in that, blood was not extravasated, but serum effused only.

Conversely, the arteries of the brain may be, and have been found in a diseased state, without giving rise to bloody extravasation. Stoll, for instance, gives a well-marked case of apoplexy in a widow of seventy-four, who, after indulging in a luxurious supper, and more generous wine than usual, was found the following morning speechless and paralytic, and, notwithstanding the use of remedies, died on the fourth day. The carotid arteries were ossified in the carotic canal, and their branches were so much affected with osseous matter, that only a few patches of healthy artery were left. The vertebral arteries presented exactly the same morbid change. (*Ratio Medendi*, Vol. i. p. 217.) No blood was effused in this case, but much serous fluid was found between the membranes on both sides, and a little in the ventricles. The *pia mater* was thickened, and its vessels were larger and more numerous on the left side than on the right, and much distended with blood. In the case of aneurism recorded by Sir Gilbert Blane, to which we shall soon advert, though the aneurismal dilatation was distinct, no blood was effused. In like manner, in the only case in which Dr Cheyne detected arterial disease, in the form of opaque white spots, no blood was found, but merely a turbid bloody serum, with much injection of the membranes. Lastly, in a case which was examined by ourselves in the summer of 1820, in which apoplectic death succeeded to general dropsy, the vertebral arteries, the basilar and most of its branches, the internal carotid, the arteries composing the circle of Willis, and its large branch, the sylvian artery,—in short, all the large vessels of the brain presented numerous and large patches of the caseous deposition, rendering the arterial membranes quite opaque; yet not a particle of blood was effused, and all the derangement of the circulation which the most careful search could bring to light, was some injection of the membranes, with a good deal of serous fluid effused between them, and into the ventricles. The inference from these facts, which might be greatly increased in number if our limits permitted, is,—that organic disease of the arteries does not invariably produce hemorrhage; that it often produces, or at least is connected with simple derangement of the circulation of the brain; and that this derangement, which almost invariably causes much vascular injection, may terminate in serous effusion or discharge of blood according to circumstances. There is no reason to believe that, in the majority of cases, it produces erosion or rupture.

The formation of aneurism, as a cause of cerebral hemorrhage, is still more liable to doubt. Baillie remarks, with his usual sagacity, that though the internal carotid arteries are liable to become ossified in advanced age, yet it is rarely observed that they are distended into an aneurismal sac, like the arteries in the other parts of the body; and he admits that two instances only of aneurisms being formed in the arteries of the head and brain had come to his knowledge. Sir Gilbert Blane, in the second volume of the Medical and Chirurgical Transactions, (p. 193), records a case of aneurismal dilatation of the internal carotid arteries in each side of the *sella turcica;* but in this instance, as has been already said, no rupture took place. Mr Hodgson in like manner relates (at p. 132) an instance of aneurismal dilatation of one of the anterior cerebral arteries, but without rupture. In short, the only well authenticated examples of fatal apoplexy from aneurismal rupture of the cerebral arteries, besides those collected by MM. Serres and Bouillaud, are the one of the basilary artery, minutely described by Hodgson, as already mentioned, and another of the anterior cerebral, as noticed shortly in a note (at p. 133) by the same author. Lastly, M. Serres assures us, in the paper now under consideration, that apoplexy from aneurismal hemorrhage of the cerebral arteries is exceedingly rare, by far the most uncommon form of apoplectic effusion; and that he is acquainted with no more than the two instances now recorded, and which we have shortly stated above. Vieussens, he adds, found the internal carotid aneurismal in the cavernous sinus; and Morgagni observed aneurismal dilatation of the internal carotid and of the basilar trunk; but in neither of the cases had rupture occurred.

Since these facts must be admitted as undeniable proofs of the rarity of aneurismal dilatation of the cerebral arteries, and more especially of the rarity of this as a cause of cerebral hemorrhage, it comes to be a question, whether the cases remarked by M. Bouillaud ought to be regarded as exceptions to the general course of facts, or whether the rarity of the occurrence is simply relative, and depends on the carelessness, or sometimes on the ignorance of those who have examined and described the morbid appearances in the brains of apoplectic subjects. It seems singular, that among several hundreds of dissections of apoplectic cases now recorded by various authors, scarcely half a score of authentic examples can be adduced, in which the hemorrhage could be satisfactorily traced to aneurismal arteries. Mr Bouillaud contends that this objection depends on a distinction without a difference; that we are deceived by the name of aneurism; and that, to refuse the lesion of which we speak the name of aneurism, because it presents no dilated sac, is to mistake the essential and constituent character of the disease. Like Mr Hodgson, he ascribes the want of the sac in cases of cerebral aneurism to the absence or small proportion of cellular tissue with which the arteries in that part of the body are enveloped. This anatomical fact explains, in the opinion of M. Bouillaud, not only the absence of the true aneurismal tumour, but the suddenness of the fatal event, in consequence of blood escaping, even in minute quantity, from the cavity of the diseased vessel. This view, it must be confessed, has the merit, not only of ingenuity, but of a high degree of probability. The best and most satisfactory evidence of its truth, however, will be derived from the careful examination of the cerebral arteries, in such cases of apoplexy as depend on evident effusion of red blood. On our pathological readers, it is superfluous to impress the necessity of attending particularly to this circumstance, as the only legitimate means of determining a point of some importance in estimating the sanability of different species of apoplexy, and in ascertaining the influence of external causes in retarding or accelerating the fatal event.

On another, and certainly the most peculiar point of the doctrine of M. Bouillaud, even greater doubt will be entertained. The changes in the structure of the arteries which is preliminary to rupture, arises, according to M. B. from a slow, chronic, latent inflammation of the proper tunics. The thickening, the caseous, steatomatous, atheromatous, and calcareous depositions in these membranes, are so many effects of inflammation, and proofs of its existence. He adduces also the authority of M. Serres to show, that distinct inflammation is often observed on the inner tunic of the arteries and veins of the brain. Without attempting to deny the existence of this inflammation, we may be permitted to remark, that it may be justly questioned whether it is the cause of these organic changes. It is possible that these changes may be accompanied with inflammation; and it is difficult to see how alterations so considerable should not be attended with more or less derangement, both in the nutrition and in the circulation of the arterial coats. But it is still problematical, we conceive, how inflammatory action should cause the arterial tunics to secrete caseous, steatomatous, atheromatous, or calcareous matter.

With regard to ulceration, erosion, or other modes of perforation of the arterial tunics, these processes are very often, we believe, the consequence of chronic inflammation, and are almost always the intermediate channel by which steatomatous or osseous degeneration destroys the arterial tunics. That this conclusion is well founded, may be inferred from what is seen in various other parts of the arterial system, in which neither caseous, steatomatous, nor calcareous deposition exist long, without producing more or less ulceration in the surrounding healthy part of the vessel. The application to the arterial tubes of the brain is easy and intelligible.

In the conclusion of his paper, M. Bouillaud proceeds to apply the views which he entertains, to explain the varieties which take place in the form and symptoms of apoplexy. He represents, in the first place, the chronic inflammation of the arterial tubes, as opposing to the motion of the blood such resistance, as to cause the beatings in the head, and the fits of giddiness and confusion which precede apoplectic attacks. When the arterial canals, either in consequence of incipient obstruction, or simply from their irregular fragility, yield to the impulse of the propelled blood, break, and allow more or less blood to escape, then the individual is smitten with apoplexy as instantaneously as if he had been struck with lightning, and the disease is necessarily fatal, if the vessel broken is considerable, and if nothing is opposed to the hemorrhagy. The author proceeds to trace an analogy between inflammations and aneurisms of the cerebral arteries, and those in other parts of the body, which, he says, not unfrequently present no remarkable symptom till the fatal moment, when the vessel and the aneurismal cyst give way, and terminate life with the blood which escapes through the rupture.

These views are doubtless ingenious. But we fear their application is much more limited in nature than the author imagines; and, notwithstanding the popular prejudice in favour of *rupture of a blood-vessel in the brain* as the cause of apoplexy, there is still reason to doubt whether it stands on much better ground, than the hypothesis of *rupture of a vessel of the lungs* to explain the occurrence of hemoptysis. However strongly M. Bouillaud protests, that he does not call in question the existence of cerebral hemorrhage from vascular injestion and exhalation, it is manifest that he allows his judgment to be biassed most strongly by the idea of actual rupture. This doctrine is, in our estimation, much too gross and mechanical to be true, even in a considerable proportion of cases; and though we by no means deny its existence as an occasional or possible cause of apoplexy, we express our decided conviction, that our recorded experience demonstrates it to be so in an exceedingly small proportion of cases. It is not by terminating in erosion, ulceration, and rupture, that ossified or steatomatous arteries cause hemorrhage, but by inducing such derangement in the motion of the blood through them as favours vascular injection, and its frequent effect, hemorrhage by exhalation, that is, by effusion from many minute arteries at once.

We conclude this article by remarking, that the facts and arguments which we have had occasion in its course to adduce, lead us to give considerable weight to a modification of the views of apoplexy entertained by M. Serres. This author, our readers are probably aware, divides apoplexy arising from bloody effusion into two kinds,—according as the hemorrhage takes place from the vessels of the membranes, or from those of the organ itself. The former, which he names *hemato-meningia*, may be the effect, he conceives, of rupture of a vein or artery, or of an aneurismal tumour formed on any artery distributed in the membranes, or in the cerebral substance. Now, though we do not deny rupture of vessels, or even of an aneurism as a source of meningeal hemorrhage, we think it equally consistent with sound pathology, to ascribe these discharges in general to a hemorrhagic state of the arachnoid membrane, not only in the outer convoluted surface of the brain, but in the inner, where it forms an integral part of the choroid plexus. When blood is found on the outer surface of the brain, it is almost invariably effused from the minute vessels of the *pia mater*, or of the arachnoid membrane. When it is found in the ventricles, with equal uniformity it will be found to have issued from the choroid plexus. That this is not mere speculation may be demonstrated, not only from the cases of daily occurrence, but from those recorded by the best authorities on the morbid anatomy of the disease. The case of the chamberlain of the monastery of Rheinau near Schaffhausen, recorded in such interesting terms by Wepfer; several of those described by Morgagni, *e. g.* (the case of Cardinal Sanvitali, those in the 13th, 15th, 17th, 19th, and 22d sections of his second epistle, and several in the third, among which is that of the celebrated Antonio Tita;) the case related by Veratti, in the Bologna Memoirs, (Comment. Bonon. Tom. ii. ch. i.;) the 48th case of Rochoux, the 4th, 8th, and 12th cases of Cheyne, are manifestly of this description. Nor is it possible to regard in any other light the example of hemorrhage into the cavity of the spinal canal, quoted from Duverney by Sauvages in his Nosology, (*Asphyxia spinalis,*) and those recorded by Mr Chevalier in the 3d volume of the Medico-Chirurgical Transactions, and by Sir Astley Cooper in his Treatise on Dislocations and Fractures, than as hemorrhages of that division of the arachnoid membrane which penetrates into the spinal cavity, and envelopes the spinal chord.

To the second form of apoplexy, termed by M. Serres *hemato-encephalia,* the same views may be applied. Though actual rupture of vessels may, in some few cases, be the cause of hemorrhage, yet in a great proportion in which hemorrhage is observed it cannot be traced to any individual vessel. (Cheyne, Abercrombie.) In such examples of the disease, the vessels of the contiguous parts, often over a large extent of the organ, are both numerous, and overloaded with dark-coloured blood,—a proof both strong and undoubted, that the hemorrhage was preceded by injection, and was discharged, if not by a process of exhalation, at least without rupture of any large vessel. It is chiefly in apoplectic effusions of this description that the pathologist is to trace the analogy between hemorrhagic diseases in general, and hemorrhagies of the brain in particular. The characters which we have now enumerated, indicate their alliance with the active hemorrhagies of the schools. Those for which M. Bouillaud contends, establish their identity with the passive hemorrhagies. This distinction is not unimportant in a practical view. The former may be mitigated, if not controlled by medicine; the latter never can.

Art. II.—1. *Johannis Friderici Engelhart, Commentatio de verâ materiæ sanguini purpureum colorem impertientis naturâ, &c.* Prize Essay on the Nature of the Colouring Matter of the Blood, being the successful dissertation for the prize-question of the Gottingen Medical Faculty for 1825.

2. *Ueber den Eisengehalt im Blute, &c.* On the presence of Iron in the Blood, and the influence of Organic Substances on the separation of the Oxide of Iron from it. By Henry

ROSE. *Gilbert's Annalen der Physik und Chemie, Mai* 1826.

THE earliest precise observations on the colour of the blood are those of Fracassati in 1667 and Mayow in 1674, who found by experiment, that the difference betwixt the colour of venous and arterial blood was owing to some change wrought on the former by the contact of atmospherical air. It was not, however, till some years later, that physiologists thought of inquiring into the radical cause of the colour itself of the blood. Badia, an Italian physiologist, appears to have been the first who detected iron in it; and his discovery was confirmed by several contemporary experimenters. Menghini, in particular, found this metal in the blood of the ox, horse, boar, and dog, and in that of birds, frogs, and fishes; and he likewise remarked that its quantity was proportional to the number of the red particles, and that very little could be procured from the serum. It was consequently inferred that iron gave the blood the red colour, by which it is distinguished from all the other animal fluids. This opinion being confirmed by the subsequent experiments of Rhades, Rouelle, Westrumb, and others, it became an acknowledged doctrine of physiology, and continued undisputed for nearly a century. At first, physiologists were satisfied with ascribing the colour to iron, without inquiring under what form the metal was present. But afterwards, in consequence of the observations of Sage and Gren, they conceived that it existed in the form of a phosphate; and Deyeux and Parmentier were led soon after to infer, that, whatever the salt might be, it was kept in solution by the free alkali of the blood. These ideas were confirmed by the experiments of Fourcroy and Vauquelin, who even alleged, that, by dissolving phosphate of iron in serum with the aid of an alkali, a fluid was obtained, which exactly resembled the blood in colour. It is not easy to conceive how these celebrated chemists had allowed themselves to be led so far astray; for phosphate of iron cannot be dissolved in the way they mention, except in small quantity; and the product, being of the colour of rust of iron, has not any resemblance to blood.

The late Dr Wells was the first who called in question the prevailing doctrine. He stated that no metallic compound loses its colour at 212°, as blood does; and that if iron was the real colouring matter, it must exist in the form of a salt, which he thought impossible, as it cannot be detected by the liquid reagents. He therefore drew the conclusion, that the blood owes its colour not to iron, but to a peculiar arrangement of the organic elements of the colouring particles.

From this time, we find the opinions of physiologists divided on the subject; but most of them have adopted the doctrine of Fourcroy, without adding, however, any new arguments in its favour. The only additional fact of the least consequence, and it is far from being important, is an observation made by Brandis in 1803, that the use of the Pyrmont mineral water, or ferruginous remedies in general, increases the quantity of the red globules of the blood. It may likewise be mentioned, that, about the same time, Emmert and Reuss, and Vauquelin, detected the protophosphate of iron in the chyle and lymph; and consequently it was inferred that this salt, which is colourless, becomes the red perphosphate when the chyle is changed into blood.

We come now to the most recent, and most minute, and best known researches on the presence of iron in the blood, in consequence of which the question of its existence has been rendered more doubtful than ever. In 1806 Professor Berzelius made an elaborate analysis of the blood; and among other objects turned his attention particularly to the mode of purifying the colouring particles, and of detecting iron in them. He found that the product of the incineration of the serum and fibrine contains no iron, but that the ashes of the colouring particles consist chiefly of the oxide of iron, and in the proportion of a two-hundredth part of the original mass. He did not determine under what form it exists in the blood; but his observations were hostile to the general opinion, that it is united with phosphoric acid. These experiments, apparently so decisive, are quite different from the results obtained by Mr Brande six years afterwards. According to the experiments of Mr Brande, iron cannot be detected in the chyle or lymph without incineration, and even then, only in very minute quantity; and the proportion present in the colouring particles is equally minute, and not greater than what exists in the fibrine and serum. Four years afterwards Vauquelin confirmed these observations, and even declared that he could not find any iron at all in the colouring particles; but his experiments are not conclusive, as he sought for the iron by analysis with liquid reagents,—a method by which no chemist had ever unequivocally succeeded in detecting it. It is unnecessary to notice the attempts since made by various minor chemists to reconcile these discrepancies and discover the truth. We may merely mention that one of them, Dr Imhoff, in a thesis published at Göttingen in 1819, has repeated the assertions of some old experimenters, that *metallic* iron may be detected in the blood by the magnet;—a very improbable assertion, which has been contradicted by every physiologist of note.

This brief history, which is an abstract of a laborious and candid narrative by Dr Engelhart, of the labours of his predecessors, will give a good idea of the state in which the important question of the cause of the colour of the blood was found by the Göttingen Faculty, when they proposed it as the subject of their prize-essay for 1825. The dissertation of our author shows great literary research, and experimental skill and accuracy; and he has not only been successful in answering the question proposed, as precisely perhaps as our present knowledge will admit, but has likewise discovered several interesting facts relative to the chemical history of the blood. We shall therefore give an abstract of his whole experimental researches.

His first object was to determine the physical and chemical properties of the pure colouring particles; and next, to determine whether they contained iron, and in what quantity comparatively with the other principles of the blood.

1. The best method previously proposed for separating the red particles is that of Berzelius. It consists in allowing the clot to drain as much as possible on bibulous paper, diffusing the colouring particles in water by trituration, and evaporating the water at a temperature not exceeding 122°. In this state they retain all their original properties without exception. But they are still mingled with a little serum. It is in this form that Engelhart employed them for ascertaining their properties when dissolved in water. In order to procure them in a state of perfect purity, he subjected them to a subsequent process, by which their nature is somewhat modified, although probably to a less degree than by any other method. It is founded on the fact, not sufficiently attended to before, that serum, when much diluted, does not coagulate by heat, while the colouring particles are coagulated and fall down in the form of brown flocks. Serum diluted with ten parts of water does not coagulate at 167° F.; while the colouring particles, dissolved in fifty parts of water, begin to coagulate at 149°; and the fluid, after filtration, is proved to contain serum by the tests of phosphoric acid * and corrosive sublimate.

The colouring particles in this state have lost their bright red colour, which is owing to their being hydrated. When half dried, they form a brownish-red, granular, friable mass; and when thorougly dried at a temperature between 167° and 190°, the mass is tough, hard, brilliant, black with reflected, garnet-red with transmitted light. In its relations to chemical agents,

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* Phosphoric acid, contrary to the allegation of Berzelius, not only coagulates albumen, but is even a delicate test of its presence when much diluted.—*Engelhart.*

it is identical with the impure colouring particles, except that it is quite insoluble in water. Alcohol becomes slightly yellow, from taking up a little fatty matter, as formerly remarked by Berzelius. Sulphuric ether and oil of turpentine have no effect on it. Sulphuric, hydrochloric, and phosphatic acids dissolve a small portion, and become brownish-red; nitric acid likewise dissolves a little, and becomes dirty-yellow; phosphoric acid has no effect; the vegetable acids dissolve a minute portion with the aid of heat, and become red; and it appears that the portion not dissolved contains some of the acid combined, for it cannot be washed out. The caustic alkalis, with the aid of heat, dissolve it entirely, and acquire a deep blood-red colour. The carbonated alkalis have very little action.

The colouring particles procured by the method of Berzelius possess nearly the same properties. With respect to the action of reagents on them, two new facts have been noticed by our author. The first is, that phosphoric acid does not alter their colour in solution, any more than it can dissolve the modified colouring matter in the solid state. The other is, that the acetate and sulphate of zinc throw down even from diluted solutions, a dark-red precipitate, which, like the common colouring particles, becomes florid on exposure to the air.

The effects of the gases have been frequently studied; yet Dr Engelhart has been fortunate in adding some facts to our knowledge on the subject, and has discovered, in particular, a method of proving, (for the first time unequivocally,) by liquid analysis, the presence of iron in the colouring matter. Venous blood, it is well known, becomes florid by agitation in air; and so do the red particles when separated, and kept even for a very long time. The colour becomes again dark when they are left at repose, and may be again enlivened by agitation with air. These changes may be produced, in fact, as frequently as desired, and for a great length of time, nay, even after putrefaction has begun. Oxygen has the same influence as air. Hydrogen, azote, carbonic acid, nitrous oxide and olefiant gas, sent in a stream through a solution, have no effect at all. Nitric oxide changes the colour to reddish-white, then purple, and lastly brown; sulphuretted-hydrogen to violet, and then to olive-green; sulphurous acid gas to brown; but none of these gases produce coagulation. Chlorine alters the colour first to dirty-green, then to grey, and lastly to white; white flocks are gradually separated, and the supernatant liquor, which is colourless and transparent, contains oxide of iron. This interesting fact we shall recur to presently.

2. Having thus determined the physical and chemical properties of the colouring particles in their natural and modified

conditions, our author proceeds to relate the experiments he made to determine whether they contain iron, and whether it is not contained in the other principles of the blood. The colouring matter was procured by the process already mentioned, the fibrine by washing and kneading the crassamentum till the water was no longer reddened, the serum by rest and the use of the syphon. The serum of the horse and that of man are alone fit for this investigation, being pellucid, yellowish, and quite free from colouring particles. That of the ox, calf, sheep, and turkey-cock is always red, and that of the dog and sow is deeply tinged, in consequence of some of the colouring particles being dissolved before they can subside. These facts may account for the discrepant statements of chemists as to the presence or absence of iron in serum. The three principles of the blood being separately charred in a porcelain crucible, the product of the colouring matter had a brilliant lustre, and was attracted by the magnet, while that of the fibrine and serum was dull, and was not attracted by the magnet. The first being incinerated yielded a yellow residue, almost entirely soluble in hydrochloric acid; and the solution gave strong indications of iron with the infusion of galls, the ferro-cyanate of potash, the hydrosulphate of ammonia, and caustic ammonia. The charcoal of the fibrine and the serum when incinerated gave a white ash, partly soluble in hydrochloric acid; but the solution did not contain even a trace of iron.

By the method of incineration, therefore, Dr Engelhart satisfied himself that no other part of the blood except the colouring particles contains any iron, and that they contain a notable quantity. But he has likewise established the same facts very beautifully by an analysis in the liquid way. We have already mentioned, that when a stream of chlorine is transmitted through a solution of the colouring particles, their colour is completely destroyed, white flocks are thrown down, and a transparent solution remains. In this solution, all the usual reagents demonstrate the presence of a considerable quantity of iron and some lime. When the fibrine and serum are treated in the same way, either no iron at all is procured, or, as when the blood of the calf or sheep had been used, traces of iron are indicated in the serum for the reason already mentioned. The chlorine in all the foregoing experiments appeared to separate the whole *fixed* elements of the principles, for the insoluble matter thrown down was always consumed entirely by incineration. Dr Engelhart suggests that this fact may be turned to some use in animal analysis generally.

He then closed his experiments, by endeavouring to determine by the last process the proportional quantity of iron in the colouring particles. The solution procured from the colouring matter of ox's blood, by the action of chlorine, being concentrated by evaporation, the oxide of iron was thrown down by caustic ammonia. It was then redissolved, and thrown down by carbonate of soda, and incinerated. Fifty grammes, [772 grains] gave in this way 0.246 [3.80 grains] of oxide of iron, or 0.492 per cent. The experiment was repeated with sow's blood, with the exception, that the iron was thrown down in the first instance by hydro-sulphuret of potash, and redissolved in nitro-muriatic acid. The proportion in this instance was 0.263 gramme, or 4.06 grains, that is 0.526 per cent. The mean of the two experiments is almost exactly the proportion assigned by Berzelius, as derived from the process of incineration.

The conclusion of the whole inquiry of Dr Engelhart is, that the colouring principle of the blood is distinguished from every other animal substance by its being coagulated by heat, even when much diluted, and by its containing iron. In other respects its properties closely resemble those of serum; and it bears no resemblance to any other substance of the same colour.

The observations of Dr Engelhart have been completely confirmed by the subsequent experiments of M. Rose, who has likewise added some satisfactory inquiries into the cause of the failure of former chemists to detect the iron by fluid analysis. He finds that the oxide of iron is not thrown down by alkalis, or by the hydrosulphuret of ammonia, or by infusion of galls, if it is dissolved in a fluid which contains albumen or other soluble organic principles. Thus, if to the solution of the colouring particles decolorized and coagulated by chlorine, ammonia is added after filtration, the oxide of iron is thrown down; but if the alkali is added before filtration, the coagulum is redissolved, and the oxide of iron is not thrown down. Nay, the fluid treated in this way can retain in solution an additional quantity of a solution of iron. He likewise remarks, that a solution of the albumen of the egg has the same power as the solution of the colouring particles: when a soluble salt of iron is added to it in considerable quantity, ammonia does not cause any precipitation.

But although the foregoing experiments set at rest for ever the question of the existence of iron in the red particles of the blood, it may still be a matter of doubt whether iron is the cause of their colour. The arguments in favour of this doctrine are, that iron is not contained in animal substances which have a close affinity with the colouring matter in many respects, but differ from it in being colourless; and that the peroxide of iron has always a tendency to impart a red colour to the substances of which it forms a part, and in some of its combinations [for example in the sulpho-cyanate of iron, in a variety of siliceous ironstone, and in the meconate of iron] it has almost the very colour of blood. Still it is not easy to conceive how so intense a colour can be owing to so minute a portion of iron as a two-hundredth part; nor does this theory account for the changes of colour which take place during the alternate transformation of the blood from venous to arterial, and from arterial to venous.

Art. III.—*Transactions of the Medico-Chirurgical Society of Edinburgh.* Instituted 1821. Volume ii. with Plates. Edinburgh, Printed for Adam Black; and Longman, Rees, Orme, Brown, and Green, London, 1826, 8vo. pp. 411.

THIS volume may be said not only to maintain but to elevate in some degree the character acquired by the first publication of the Medico-Chirurgical Society of Edinburgh. The volume is not so large, and the papers are shorter. The selection, however, is uniformly good; and, generally speaking, the merit of the papers is very considerable. They demonstrate not only the zeal and industry, but the judgment and talents of the members. A short account of their principal contents is all that we can pretend to give.

There are three papers on physiological subjects. The first is entitled *Observations on the Prevailing Opinions respecting Respiration and Animal Heat, with experiments*, by Dr C. J. B. Williams. This paper, which is both experimental and argumentative, consists of two parts; the first on the chemical changes effected by the process of respiration; the second on the source or sources of animal heat.

In treating the first of these subjects, Dr Williams rejects the theory suggested by Black, Priestley, and Lavoisier, even as it was improved by Ellis, and gives the preference to the theory of La Grange, which he attempts to modify by new researches. Adopting the inference to which the recent researches of physiologists seem to lead, that fluids may penetrate animal membranes even in the living state, Dr Williams infers, that gaseous fluids have direct access to the blood through the same channel, and he revives the old opinion of oxygenous gas entering the blood through the pulmonic mucous membrane. Adopting, likewise, the inference of Coutanceau, lately confirmed by the accurate researches of Dr Edwards, that carbonic acid is emitted when oxygen is not inspired, and, therefore, that the formation of the carbonic acid is not produced, as Allen and Pepys have inferred, by the mere union of the oxygen of the inspired air with carbon, already existing in the venous blood, he concludes, that the expired carbonic acid is not formed in the lungs, but exists in the venous blood, from which it is extricated through the pulmonic mucous membrane, exactly as the oxygenous gas is received. The change, therefore, effected on the blood in the process of respiration, consists, according to Dr Williams, not only in the loss of carbonic acid, but in the acquisition of oxygenous gas; and he supposes that the latter simply displaces the former from venous blood.

The subject of the first part of his paper naturally suggests that of the second;—a theory of the formation of animal heat, which may be shortly stated in the following manner. Assuming the general chemical fact, that whenever oxygen and carbon unite, heat is generated, Dr Williams contends that the phenomena of respiration show, that a union of this description is constantly going on in the human body; and he adduces various arguments to prove that the seat of this union is not, as Crawford and Ellis maintained, confined to the lungs, but extends to every part of the sanguiferous system. But though he regards this union as the principal, he admits that it is not the only source of heat. He thinks it is only one of many changes by which *animal matters are resolved into simple* principles; and he concludes, that the formation of heat in the animal body is an effect, or at least a part of all those processes by which the matters of secretion are formed from the albuminous part of the blood.

This theory is vitiated with a logical inconsistency in the outset. Dr Williams contends, in his reasonings on respiration, that carbonic acid exists in the blood ready made, and is simply displaced by the oxygen of the inspired air. In his speculations on the source of animal heat, on the other hand, he is obliged to have recourse to the opposite hypothesis, that there is an incessant combination of oxygen with carbon in the living body. Another important oversight may be recognised in overlooking the process of nutrition. Dr Williams may not be wrong in considering the function of secretion as one of the sources of animal heat; but we are almost certain that he cannot be right in neglecting the influence of the molecular process of nutrition. Many facts might be adduced to show, that the former is subservient to the latter; that the latter is the great object of all the other processes; and that secretion is important, chiefly as it is, to use the language of geometry, a *complementary* process of nutrition.

In the opinion that the generation of animal heat takes place not in the lungs but in the capillary system, Dr Williams was anticipated long ago by Bichat, who defended it with much ingenuity and great force of argument.* The essay, notwithstanding these objections, is very ingenious, shows perfect and intimate acquaintance with the best researches on the function of respiration, and displays considerable talent for physiological inquiry.

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* "Je crois, au contraire, j'enseigne depuis que je fais des cours de physiologie, et je disois meme avant d'en faire, que c'est dans *le systeme capillaire generale* qu'il a son siege." Anatomie Generale, Tom. ii. p. 521.

The second physiological article is by Dr Alison, and consists of *Observations on the Physiological Principle of Sympathy, chiefly in reference to the Peculiar Doctrines of Mr Charles Bell.* This is a very comprehensive and elaborate examination of the nature of that connection between remote parts, and their actions in the animal body, termed *sympathy*, not nervous, but which might be named *vital or organic sympathy*, and of the laws by which its phenomena are regulated. The essay is so argumentative, that no adequate idea of its merits can be communicated in any abstract, however able; and we have no hesitation in recommending it to the serious perusal of all physiological readers. Dr Alison adopts and extends the opinions of Haller, Whytt, and Monro on this subject, and displays much ingenuity, as well as force of reasoning, in establishing the two following principles: *First*, "That the sympathetic actions, defined in the manner Dr Alison has done, in the natural state, are to be ascribed to the influence of certain mental sensations;" and, *secondly*, "that the effect of these sensations in producing them cannot be explained on the anatomical principle of connections among the nerves of the sympathizing parts." Without pretending to deny that distant parts of the animal body may be connected in their actions, independent of the union which takes place by the nervous system, or, perhaps, any union demonstrable by anatomical connection, we must be allowed to say, that the subject is still open, not to discussion, but to experimental inquiry; and that it is only when anatomical research has exhausted all the connections of remote actions, that we can be permitted to conclude, that the residue are of that kind termed *sympathetic*. One thing is certain, that Dr Alison has rendered a most essential service to the physiological world, in correcting the vague and ill-defined manner in which medical persons think and speak of sympathy; and in showing, that if they had either known or remembered the observations of Dr Whytt on the subject, they would have been less likely to fall into the gross errors which some physiologists have committed of late years, and would have had much less cause of self-gratulation upon the discoveries which they flattered themselves they had achieved.

The sequel of the paper contains a minute examination of the hypothesis of Mr Charles Bell on the nerves and actions of the organs of respiration. We frankly confess, that we do not feel competent, in the present stage of this inquiry, to form any decided opinion on the merits or demerits of this hypothesis; and as, on a former occasion, we gave a pretty full account of it, with such comments as seemed then requisite, it is less necessary now to resume the subject.

The third physiological paper is on *Cutaneous Absorption*, by Dr Dill. The experiments performed by this author, tend to prove, that immersion in the tepid or warm bath is followed by absorption of fluid by the skin.

The volume contains three instances of monstrous malformation in the structure of the human body. The first is a *description of two children united together, now living in the village of Arasoor*, district of Bhavany, by Dr Berry, late of Calcutta, now of Edinburgh. These children, which are females, are united by their sternums, sleep face to face, and walk sideways, in the form of a circle. Medicine given to one affects both; one will wake while the other sleeps, but both generally sleep at the same time; and, what is more remarkable, one was entirely nourished, for some months after birth, by what was received into the stomach of her sister. The second is the *description of a monster, in whom the upper and lower extremities were entirely wanting*, by Dr Charles Hastings of Worcester. Each scapula had an acromion, but no glenoid cavity; and the *ossa innominata*, though otherwise complete, were without acetabulum, in place of which, on the left side, there was a small process like a finger, consisting of two small bones united by ligaments, and covered with skin and cellular membrane. This child died of pulmonic inflammation six months after birth; but there is no dissection. The third instance is the case of an *infant, in which the stomach terminated in a cul de sac*, by Mr Crooks of Kilmarnock. The infant died on the evening of the third day, sixty-five hours after birth, after vomiting dark-coloured matter, like bloody *meconium*, and, finally, blood at intervals. "The internal surface of the stomach was spongy and inflamed, and in several places dark coloured, and blown up with numerous air vessels, apparently from gangrene. The pyloric extremity of the stomach terminated in a pouch, or second stomach, without outlet, a complete *cul de sac;* so that no direct communication could exist between this organ and the bowels. Into the fundus of this second stomach the pancreatic duct opened."

On subjects in medicine and medical pathology, there are the following eleven papers.

Mr W. Muir Hamilton of the Hon. E. I. C. service, gives a short but very clear account of the nature, causes, and treatment of beriberi. It is well known that this disease appears in the form of an acute general dropsy. Mr Hamilton shows satisfactorily, that it consists in a peculiar gorging of the vessels of the lungs, liver, and other internal organs, and that the external dropsical appearances are symptomatic effects only of this internal distension and obstruction. The most successful treatment is copious blood-letting, followed up by perspiration, produced by large doses of calomel and laudanum, and the employment of mercurial ointment till ptyalism is induced.

Dr Ralph, late assistant surgeon of the Queen's regiment, gives a minute and interesting account of yellow fever, as it appeared in that corps in the Island of Barbadoes in 1816 and 1817. The facts adduced by the author show that in this case the disease was neither originally produced nor propagated by contagion. The description of the symptoms during life, and of the appearances of the organs after death, bears every mark of accuracy and fidelity, and confirms the accounts given by Hunter, Ferguson, and Jackson.

The cases communicated by Dr Stevenson of Arbroath, tend strongly to confirm the opinions advanced by Dr Wells in 1799, that, in some seasons at least, erysipelas is associated with contagious properties, and is communicated by this means from one person to another. The well-told case of fatal hemorrhagic *purpura* by Dr Fairbairn, illustrates the pathological nature of that disease, and demonstrates the general tendency in every texture of the body to hemorrhagic effusion and capillary disorganization. We think the author was perfectly right in carrying the depleting method to the extent mentioned. Though the case terminated fatally, there is no reason to think that the termination would have been prevented by abstaining from venesection, or by the administration of wine, bark, and other stimulants.

Dr John Gairdner is the author of two papers; the first a case of *carditis*, showing inflammation of the cardiac pericardium and of the substance of the heart; the other a case of disorganization of the stomach, with pathological and practical remarks, as a supplement to the essay on the same subject in the first volume of the Transactions. Both articles are entitled to the highest praise, for the value of the information which they contain, and for the perspicuous manner in which it is communicated. The latter paper particularly bears marks of the accurate observation and just pathological views of the author. Dr Gairdner throws out a hint, which we regard as exceedingly near the truth, that the weaning brash, (*atrophia ablactatorum* of Dr Cheyne,) is the morbid condition of the gastro-intestinal membrane, which terminates in this disorganization.

A case of chronic water in the brain by Dr Charles Miller of Methven, forms a good contribution to the anatomical history of that disease.

The article by Dr James Molleson consists of three rather odd and quite unconnected cases. The first furnishes an example of stricture of the ileum with artificial opening at the navel produced by inflammation and suppuration, and of tubercular phthisis in the same subject, a girl of nine years of age. The second is denominated by the convenient nosological term of *physconia*, but is neither more nor less than an instance of chronic peritoneal inflammation terminating in sero-purulent effusion. The third case, by Mr Robert Shand of the Royal Navy, appears to belong to that order of cases which Dr Duncan Jun. described so accurately and minutely in the former volume under the name of *diffuse inflammation of the cellular membrane.* The exciting cause is said to have been mercury in excessive quantity.

The *observations* of Dr Thomas Anderson of Trinidad *on the use of tobacco in tetanus*, form a valuable addition to the paper of that gentleman in the first volume. From three cases given, one of which however terminated fatally, the antispasmodic powers of tobacco appears to be great. The remedy however is still under probation.

The *observations on the dysentery of Madeira*, by Dr A. N. Renton, constitute a strong, and, so far as we may judge, rather a partial panegyric of the sanative powers of calomel with opium pushed to salivation in that disease. The author condemns in the strongest terms the use of the lancet, every case treated by which, he says, terminated fatally.

The valuable case of chronic gastritis, for which the society are indebted to the diligent observation of Mr William Brown, shows how little disturbance may be produced by chronic inflammation of a mucous membrane, which is so serious as to go on steadily to the fatal event. The patient had dyspeptic symptoms only during life; yet, after death, the mucous membrane of the stomach was found thickened, vascular, and velvety.

On surgery, surgical pathology, and operative surgery, there are nine articles.

Mr James Wardrop describes the appearances and treatment of exanthematous ophthalmia, with the knowledge and accuracy for which all his writings are distinguished. Mr Alexander Watson communicates some observations on chronic inflammation of the iris. Two cases of *extraction of calculus from the female bladder* by dilatation of the urethra, by Dr Robert Hamilton the secretary, and Dr Ramsay of Dundee, are good examples of the practicability of that operation. The dilatator of Weiss was used in both instances with good effect. An excellent case of *mollities ossium*, with the appearances on dissection, is communicated by Mr Howship of London. This dissection is valuable for showing that the preternatural softness "was the effect of a morbid action in the capillary arteries upon the medullary membrane within the bone;" and Mr Howship reasonably infers, that "the progressive absorption of the bone itself was merely one of the consequences of the long continuance of the malady." The case, and especially the account of the dissection, are worthy of attentive perusal.

A good case of chronic pleurisy terminating in *empyema* is given by Dr James Pitcairn, in which the operation of paracentesis was performed with the effect of producing a permanent cure. Dr Ballingall relates an interesting case of stone in the bladder of a boy of six years of age, in which the large size of the concretion, and its high situation in the bladder suggested extraction by the high operation. It was performed, and the stone removed, after some little difficulty from its size, the longitudinal diameter being above two inches, the transverse fully one and a half. Symptoms of peritoneal inflammation, however, supervening, death took place thirty-two hours after the operation. Dissection showed the peritoneum to be inflamed, and the bladder considerably diseased. A paper by Mr Fielding of Hull, on the use of silk-worm gut as a ligature for arteries, to be cut short in the manner recommended by Mr Lawrence, well deserves the attention of the operating surgeon. Though the cases adduced by Mr Fielding do not appear to have been much shorter than the ordinary run of operations, yet as this substance seems to create little irritation in the wound, and never to be a cause of suppuration, there is reason to believe that its employment would be a valuable improvement in the treatment of incised wounds, or where ligatures are necessary.

The last surgical communication consists of *observations on gun-shot wounds of the extremities*, illustrated by a case, by Dr Boggie, surgeon to the forces. The principal bent of these observations is to show the possibility of preserving a limb when severely contused with fracture, and splinter of bones, so as in general to suggest no alternative but amputation. The particular circumstances which warrant this course are not easily susceptible of generalization; and much must be left to the features of each case, and to the discretion of the surgeon.

The last article which falls under our notice in this volume, is a subject in juridical medicine. It consists of *an account of several cases of poisoning with arsenic, illustrating the delicacy* *of the chemical evidence, and the weight of the evidence drawn from symptoms*, by Dr Christison. This communication is extremely valuable in showing how precise and certain are the results derived from accurate chemical analysis of the contents of the stomach, and the substance of the organ, if needful. It is, however, impossible to give any abstract of it; as, notwithstanding its length, the matter is greatly condensed, and of that nature that a partial or short view would be as useless as none at all. It is scarcely requisite to remind the readers of this Journal, that Dr Christison insists upon the test by reduction; and that he recommends, for the purpose of throwing down the oxide of arsenic, the transmission of a stream of sulphuretted hydrogen gas through the suspected fluid. The precipitate thus obtained, if reduced with black flux in a small glass tube with suitable precautions, invariably furnished by sublimation a metallic crust, of distinct crystalline structure; and so accurate is this process, that the author has obtained this crust from the twentieth, nay the fortieth part of a grain of the oxide; and Dr Turner has succeeded in obtaining a distinct metallic crust from a hundredth of a grain. This paper must, on the whole, be regarded as one of the most valuable contributions to the subject of poisoning, which analytical chemistry has yet made to the science of juridical medicine. It ought to be carefully perused by every practitioner who is liable to be requested to give evidence in cases of poisoning; and no one should attempt to give evidence in such cases, without having deliberately studied the information which it contains.

In concluding our account of the second volume, we are happy to repeat, that the character of its contents enables us to bear testimony to the activity, diligence, and judgment of the members of the Edinburgh Medico-Chirurgical Society. We trust their zeal will suffer no abatement; that they will go on with increasing industry; and that every succeeding volume of its Transactions will surpass that which preceded.

ART. IV.—*The Medical Evidence relative to the duration of Human Pregnancy, as given in the Gardner Peerage Cause, before the Committee of Privileges of the House of Lords, in* 1825-6. With Introductory Remarks and Notes. By ROBERT LYALL, M. D., &c. pp. 134. 8vo, London, 1826.

THE possibility of utero-gestation being protracted beyond the ordinary term of nine months, has repeatedly been made the subject of question in the law courts of most of the European kingdoms; and, on these occasions, many of the most celebrated accoucheurs have been brought forward to state their opinions and experience; but the question still remains undecided. During the late inquiries before the House of Lords on the subject of the Gardner Peerage, the parties cited no fewer than seventeen of the chief midwifery practitioners in London, the whole of whose evidence has been published in the interesting pamphlet before us; but so little has thus been added to our knowledge on the subject, that we believe a medical jurist will hardly find in the work a single new fact or argument to aid him in forming his judgment. This appears rather a singular result, when it is considered that the question must force itself upon the attention of every accoucheur in extensive practice; and one is therefore led to infer, either that, in the collecting of appropriate facts, the ordinary principles of evidence are lost sight of, or that the question is of such a kind, as in the nature of things cannot admit of certain evidence. Perhaps both inferences are correct. That the accoucheurs, who have figured in the Gardner peerage cause, have shown one and all of them an extraordinary ignorance of the principles of evidence, will be conceded by every one who examines carefully their testimony. But it may also be doubted whether the question admits of better evidence than has already been procured or at least aimed at by them and their professional predecessors.

The possibility of protracted gestation involves the previous question regarding the possibility of determining the exact commencement of pregnancy, that is, the precise date of conception. The following appear to be the means on which alone the accoucheur must rely, when he endeavours to ascertain this point; —the occurrence of a single coition—the occurrence of certain peculiar sensations in the female at the time of conception, —the disappearance of the catamenia,—the date of the quickening of the child; and to these may be added three corroborative tests in the case of apparent protracted gestation,—the state of the womb and *os uteri* at the various stages of pregnancy,—the occurrence of false labours at a stage corresponding with the supposed ninth month,—and the delivery of an unusually large child.

We shall notice shortly the strength of evidence attached to each of these criterions, partly to correct the errors of the witnesses in the Gardner peerage cause, partly with the view of preparing the obstetrical reader for a statement of what we consider he should hereafter turn his attention to, for the purpose of collecting more satisfactory evidence.

With regard to the first criterion, it would supply decisive evidence, if there could be a certainty of the fact. But all of the witnesses in the Gardner peerage cause, who have referred to the evidence derived from a single coition, have shown an unaccountable laxity in their method of satisfying themselves regarding the accuracy of the facts they rest on. All of them who refer to instances of this nature, necessarily refer to instances of young women who have become pregnant subsequently to seduction, and who gave their assurance that they had connexion but once. Thus, conceding that they were indebted for their facts to the immorality of their patients, they at the same time trust them as to a point, on which every man of common sense will readily perceive that the relaters have a strong inducement to prevaricate. We believe every man's experience agrees with that of Professor Remer of Breslau, stated in his edition of Metzger's Medical Jurisprudence,—" that unmarried pregnant women rarely confess more than one connexion, and that it is often impossible to reconcile the condition of the child with their statement." [*System der gerichtl. Arzneiwiss.* 347.] How Mr Clarke, therefore, should have known twenty such cases, in none of which the pregnancy exceeded 280 days, it is very difficult to conceive; as his statement is equivalent to his belief, that, of all the females in the above-mentioned predicament who came under his notice, not one lied in defence of her character, as her companions in misfortune generally do. We frankly declare, that we put no faith whatever in this kind of evidence. It is not a little extraordinary, too, and a great encouragement to our distrust, that among the medical witnesses, who, on such grounds, believe in the absolute uniformity of the extreme duration of pregnancy, there is a difference of a whole week in the actual length of the period they have severally assigned!

The occurrence of peculiar sensations at the time of conception, is another circumstance from which the accoucheur has been accustomed to infer the date of pregnancy. At the same time it is perfectly well known that these sensations are too undefined, and too similar to other sensations; and consequently that women are in point of fact often deceived by them. Another objection to this criterion in the cases adduced by the witnesses in the Gardner peerage cause is, that the woman's statement was almost always made to her attendant from recollection of what happened several months before. If in any case the female should consult her attendant at the time the peculiar sensations occur, the evidence in favour of impregnation having taken place at that particular time would be important, because the sensations must have been strong, and he can satisfy himself whether they are of the kind usually felt. But if they are referred to after an interval of several months, when other circumstances have also led her to suppose herself pregnant, they are evidently unimportant, since it is impossible to rely on the accuracy of her recollection as to feelings of so undefined a nature. On several occasions the House of Lords drew a very proper distinction betwixt the evidence derived from the present criterion under these two circumstances,—it being fact in one case, hearsay in the other. But is it not surprising that the witnesses were all so ignorant of the principles of evidence as not to have drawn the distinction themselves?

The next criterion for establishing the date of pregnancy is the cessation of the catamenia. This, however, is well known to be a fallacious criterion. But besides, even if it were not liable to fallacy, it is too vague and only approximative; for some calculate from the day after the last menstrual discharge, others from the day on which it ought to have returned, that is a month later, others from the middle of the interval between the last discharge, and the time when it first failed to return; and it is impossible to say, even presumptively, which is the correct method. Evidence of this kind, too, must be always objectionable in so far as it is hearsay; but the female can hardly ever be deceived.

The date of the quickening of the child varies so much, that it cannot afford more than an approximative criterion. It appears, however, that its date is very uniform in the several pregnancies of the same female; and hence in such persons the date of conception can be settled presumptively. We question whether our present knowledge would justify more than a presumptive opinion.

The evidence derived from the state of the *os uteri* and from false labour-pains, can evidently be but corroborative, because in pregnancies of ordinary duration false labour-pains, and an approximation on the part of the *os uteri* to its state at the end of the ninth month, are sometimes observed at a period considerably short of the full time. As to the occurrence of false labour-pains in cases of supposed postponement of delivery taken as evidence of protracted gestation, may it not be particularly objected, that they are likely to occur in a natural pregnancy, when the woman has miscalculated her time?

The last criterion, namely, unusual size of the child, is also evidently but corroborative. The child may be unusually large, although the pregnancy has been natural. It should also be added, that, although in the best authenticated cases of supposed protracted gestation, the child has been unusually large, this circumstance is believed by many to be by no means necessary.

Of the criterions now enumerated, therefore, some are equivocal in their own nature; the rest are equivocal because in special instances it is impossible to ascertain them satisfactorily. Hence any one of them singly cannot supply evidence on which a reasonable man would rely for one moment. But there is another view of them, which, in this as in other departments of medical jurisprudence, has not been taken distinctly enough by witnesses, and which may lead to a very different inference. Although singly equivocal, may they not yield substantial proof when combined? Let us suppose all, or most of the criterions to be united in one case, (and an opportunity of observing such a union does not appear impossible, if protracted gestation does really occur):—let us suppose that a woman experiences certain sensations, such as she has felt before at the time of conception, and gives her attendant an opportunity of satisfying himself of their nature at the time,—that the catamenia do not return,—that, after experiencing the said sensations, she perceives the quickening of the child at the same time as in her previous pregnancies, and gives her attendant an opportunity of personally ascertaining that fact,—that at a period corresponding pretty nearly with the two hundred and eightieth day after the supposed conception, false labour-pains come on, and her attendant ascertains that fact also,—and that after a farther interval of days, weeks, or months, a child is born of unusual size and vigour,—we must confess, that, under such circumstances, nay, even although the two last conditions, false labour-pains and unusual size of the child, were wanting, it would not be easy to deny that pregnancy had been protracted.

Such is a statement of what is conceived to be the best evidence which the nature of the question admits of, and to which, therefore, we are anxious that the attention of accoucheurs should be directed. Whether such evidence would be satisfactory, will appear from the following considerations.

Protracted gestation is certainly contrary to the ordinary rule of nature. What degree of evidence then is required to establish the possibility or probability of an occasional exception to the rule? Now, the rules of nature as to the exercise of the various animal functions are all, or almost all, liable to exceptions. This is particularly the case with respect to the laws which govern the function of generation. The rule in question is also decidedly liable to frequent exceptions in the case of the lower animals of the most perfect kind. Hence the prolongation of human pregnancy, *prima facie*, is very far from being impossible; on the contrary, on physiological principles and by analogy, it is probable. And, consequently, the evidence alluded to above appears sufficient to establish an actual case satisfactorily. Absolute certainty is, in the nature of the thing, quite unattainable.

But what number of facts would be sufficient to establish the negative side of the question? Mr Clarke, and those who along with him deny the possibility of protracted gestation, have fallen into a great blunder upon this point. Because Mr Clarke met with twenty cases in which the time could be exactly computed, and in all of which the ordinary term was strictly adhered to, it does not follow, granting the validity of his facts,—and that is doing more than we can see any reason for,—it does not follow, that a deviation is impossible, or even improbable.

It does not need Mr Clarke's cases, however, to convince every man that, in by far the greater number of cases, the ordinary term of pregnancy is adhered to. Consequently, if the possibility or probability of its being prolonged is conceded, it does not follow, that in actual practice judgment should go upon the general probability of the event, as a fact in physiology. On the contrary, since, in the abstract, more disorder would be occasioned in society by admitting the general principle as adequate to decide special cases, than by rejecting it altogether, we conceive that, if a definite period is not to be fixed by law, proof of the special probability or improbability should be required in each case. On which party the *onus probandi* should lie, must be left to others to determine.

As to the evidence in the Gardner peerage cause, we need hardly say, that it is quite inadequate to decide the general question. The proof of the special probabilities in favour of protracted gestation in the case of the claimant Jadis, was never attempted. Therefore, on the above principles, the judgment of the House of Lords against him was quite correct. The proof, however, of the impossibility of protracted gestation, as a general principle in physiology, was not even presumptive, the facts founded on being not only equivocal, but also insufficient in number to prove even improbability, besides that the witnesses on this side of the question disagreed materially as to the actual length of the period which they maintained to be invariable. On the other hand, the proof of the possibility of protracted gestation was made hardly one degree better than before the facts in this cause were published; for not a single example referred to by the witnesses was established on more than one of the circumstances, which we have enumerated as necessary to establish a case in point. At the same time, " such accumulated evidence as may be adduced from numerous ancient and modern writers,—personal experience,—and reasoning by analogy from what takes place in the brute creation, form evidence which would be considered " by many people, as by Dr Conquest, " satisfactory proof in the investigation of any other question in natural history;" and at all events must lead every reasonable man to anticipate satisfactory proof from more accurate inquiries. And in conclusion, we must add that this, like all other important medico-legal questions, is to be finally decided, not amidst the quirks and embarrassments of a law-suit, *but by a dispassionate inquiry into fresh facts, made after a previous careful consideration of the circumstances necessary to constitute valid evidence in a court of law.* Such an inquiry is well worthy of the attention of our most celebrated accoucheurs.

Medical jurists are under deep obligations to Dr Lyall, for collecting the evidence in the Gardner peerage cause, and for his judicious comments on it. He has with perfect propriety ascribed many of the errors of the witnesses to their ignorance of the principles of medical jurisprudence. His introductory remarks and notes, and the facts of the case, would furnish ample scope for many instructive disquisitions and useful lessons on detached topics in medical jurisprudence. But our limits forbid farther details.

ART. V.—*Essai sur les Cryptogames des Ecorces exotiques officinales; precedé d'un methode lichenographique, et d'un Genera, avec des considerations sur les reproductions des Agames, orné de 33 Planches coloriées, donnant plus de 130 figures de Plantes cryptogames nouvelles.* Par A. S. A. Fee, Pharmacien, &c. &c. pp. 167, 4to. Paris, 1825.

IN the selection of works as the subjects of critical analysis, we have kept in view as much as possible the practice and philosophy of our profession, and have rarely permitted ourselves to be seduced by the greater attraction of purely scientific pursuits, however intimately connected with it. We are sensible, however, that we have carried our forbearance too far, and we feel ashamed that in our pages there stands no exposition of the doctrines of Decandolle,[*] on the connection between the medical and economical uses of plants and their external characters, nor of the illustration of that doctrine in the medical botany of Richard.[†] While, however, we abstained from discussing subjects of scientific chemistry and botany, we were not insensible to the benefit they might confer even on practical medicine, nor were we ungrateful towards those men of science who were not deterred by the impertinent question *Cui bono?* from devoting themselves to the minuter, and in the eyes of the vulgar, frivolous, pursuits of science. It is fortunate for man that there is implanted in his nature a spirit of curiosity, which impels him to seek for information for its own sake, and which, when once roused into action, is never sated. Although at the time there seems no probability of any benefit resulting from it, except the gratification of the individual engaged in such pursuits, yet from time to time practical utility is derived when it is least expected. Of the truth of this remark, the splendid volume before us is an evidence; for who could have foreseen that the study of cryptogamic botany was to improve our knowledge of the exotic medicinal barks, and enable us to distinguish the genuine from the spurious.

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[*] Essai sur les propriétés medicales des plantes comparées avec leurs formes exterieures, et leur classification naturelle. Par M. A. P. De Candolle, Prof. de Botanique, &c. 8vo. Paris, 1816.

[†] Botanique Medicale, on histoire naturelle et medicale des medicamens, des poisons, et des alimens tirés du Regne Vegetale; Par Achille Richard. pp. 818, 8vo. Paris, 1823.

M. Merat, in the excellent article upon *Quinquina*, in the *Dictionnaire des Sciences Medicales*, was one of the first naturalists who directed the attention of men of science to the characters which might be derived from the cryptogamic plants found upon them. The study is attended with great difficulty, arising, besides other causes, from the epidermis of these barks being often removed or rubbed, and from their native country not being accurately known. Although in the same latitude different exotic barks, having similar physical properties, may nourish the same parasitical plants in foreign climates, as well as in our own, yet it is certain that each tree has some which occur rarely in any other. Thus the *Cinchona oblongifolia*, (Mutis), has a *Thelotrema;* the *C. cordifolia*, (M.) a *Chiodecton*; the *C. Condaminea*, (Humb. and Bonpl.) a *Sarcographa*, and the *C. Laccifera*, (Ruiz. and Pavon,) a *Graphis*, which is not found on congenerous species; so that it is possible, to a certain extent, to identify the species, by determining the cryptogamia which grow upon it. This means, which does not supersede the knowledge of the external characters, but adds to it, enables us to distinguish with certainty the Cinchona and neighbouring genera, natives of Peru, from those of St Lucia, Jamaica, and other places. Lastly, When the barks do not afford distinctive cryptogamia, which often happens, advantage may be taken of the *facies cryptogamica*, or manner in which the cryptogamia covering them are grouped

These observations on the application of the study of cryptogamic botany to materia medica, are succeeded by a very ingenious essay on the reproduction of Agamic plants, and by a lichenographic classification, together constituting an Introduction occupying nearly half the volume.

The work itself consists of the Essay on the Cryptogamia of the Exotic Officinal Barks, and of a detailed description of their species and varieties. The exotic barks, upon which cryptogamic plants are found, are the *Cinchonas*, *Angusturas*, *Cascarilla*, *Cassia lignea*, *Guaiac*, *Zanthoxylum Caribæum*, Winter's bark, *Quassia amara*, *Alcornoque*, and some others.

The botanical history of the Cinchonas is pretty well known; but it is still a *desiderutum* that we should be able to apply to the barks, as they occur in commerce, the botanical appellation of the species which furnishes them. But this is not possible in the present state of our knowledge, and in the mode of collecting and transmitting the bark. It is sufficient to inspect a chest of pale, yellow, or red bark, to be satisfied, from the great difference in its contents, that they are not all furnished by the same tree. The pale bark also passes into the yellow by shades which it is impossible to discriminate; and the yellow often approaches the red in colour and taste. It is probable that the natives, after barking the trees in the forests, sort the barks according to their physical appearance. The young bark, rolled up small, rugose, and grey, will furnish the grey bark of Loxa of commerce; what is somewhat larger, and more aged, will be the grey bark of Lima. When the tint is yellow, and neither grey nor red, and the bark is of advanced growth, and rugose and cracked, it is put among the yellow bark; and all Cinchona barks which are red are indiscriminately put among the red of commerce. Hence arises the confusion of synonyms and locality, and the discrepancy among authors with regard to the physical characters and botanical names of the Cinchona barks in commerce.

On this account also, M. Fee was obliged to renounce his intention of describing the *facies cryptogamica* of each species, although his researches have already proved of value to assist in determining both the goodness and identity of certain kinds. Thus we may suspect the goodness of barks in which a *Hypochnus*, a fungus, is found; we should reject altogether those which support *Himantias*, a fungus, *Rhizomorphas*, *Lycoperdons*, and *Lichens* of the genera *Collema* and *Jungermannia*. On the contrary, we may safely admit barks, etched by *Graphides*, or eaten away by *Lecanores*.

M. Fee concludes this essay with a succinct sketch of the plants which are found upon the epidermis of the different Cinchonas of commerce, and subjoins by far the most ample concordance of the botanical synonyms of the Cinchonas and congenerous genera that we have seen.

The next essay is upon the Angustura barks, the true and the false. The former is now ascertained to be the bark of the

Bonplandia trifoliata, or *Cusparia febrifuga*; but the latter, which comes from South America, belongs to an unknown tree. M. Fee denies that it is the bark of the *Brucea ferruginea*, a native of Abyssinia, or of the *Strychnos pseudoquina*, which was advanced by M. Saint-Hilaire. M. Fee is astonished that these barks can be confounded, they are so different; and he points out very obvious distinctions, which we do not remember to have met with before. The true Angustura bark is shaved off with a broad plane cutting instrument; while the false is torn off in strips by main force; and, what is more to M. Fee's purpose, the true Angustura is covered with a great variety of parasitical plants; while the false rarely bears cryptogamia, but has a rusty exuberance, which is a mere thickening of the epidermis, a variety of cork, a change which occurs in other barks. We possess fine specimens from the *Cassia alata*. A change of the same kind occurs in the true Angustura; but the cork is whitish, and its appearance cottony, and is without taste or smell.

A few observations are made on the parasites of the *Cassia lignea* and *Cascarilla.*

The rest of this valuable volume contains a detailed description of the cryptogamia of the exotic barks, systematically arranged; to which we must refer all who are capable of understanding the subject. The plates are thirty-four in number; and each of them contain many figures, correctly drawn, and beautifully coloured, so as to leave nothing to be desired, except a prosecution of the subject by one so competent.

ART. VI.—*Versuch einer Monographie der China.* Von Heinrich von Bergen, Droguerie Makler.* Hamburg, 1826, 4to. pages 348, with eight plates and ten tables, folio.

WHEN a writer makes any single object of science his sole pursuit, and employs his utmost diligence in the prosecution of it, we certainly have more reason to expect satisfactory information, than when his attention has been bestowed upon a multiplicity of objects. Hence monographs have always been considered as the surest means of elucidating any particular branch of knowledge; and the work before us, which is of that class, will not, probably, be found to disappoint the reader. It is not, indeed, the production of a medical man, but of one who has had, for a series of years, occasion, in a mercantile view, to become intimately acquainted with his subject. To this point his attention has, almost exclusively been directed, and without any regard to expence or labour.

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* Drug Broker.

How well qualified he was thought to be for the execution of his plan, we may collect from the acknowledgments he makes for assistance and encouragement, to a number of men eminent for their acquirements; among whom stands the names of Herrmann and Rudolph Sickmann, who undertook the botanical department; Professors Hipp, Lehmann, Pfaff, and Stromeyer, Doctors Buek, Eimbcke, Julius,* Martius, Kunhardt, Moldenhawer, Sandtmann, &c. &c.

Mr Von Bergen has carefully availed himself of every other assistance which his own collection, or the extensive libraries to which he had access, could afford, in order to give a summary of all that is contained in the most ancient records respecting the introduction of Peruvian bark, its general history, &c. as well as in the most recent publications. In this part of his work an idea may be formed of the author's great industry, and of his anxiety to exhaust the subject, by considering that a catalogue of between seven and eight hundred works, most of which he has consulted, is given to the reader, including every important publication on the natural history, and even on the medical uses of the Peruvian bark. The table of contents, here subjoined, will give some idea of the nature and extent of the different heads under which he arranges his subject.

I. Literature.

II. Name, origin, etymology, &c.

III. History, 1. From the most early period of its introduction to the time of Condamine, or from the year 1632 to 1738. 2. From the time of Condamine to the present day.

IV. Surrogates for the bark. 1. Those which are indigenous. 2. Those which are of foreign origin.

V. Descriptions of the trees which yield the febrifuge barks. 1. Cinchona. 2. Exostemma.

VI. The febrifuge barks. 1. Terminology. 2. Description. 3. Mode of procuring.

VII. Chemical division. 1. A treatise by Professor Pfaff. 2. Experiments with reagents. 3. Mode of obtaining the salts of China, by H. L. von Santen.

VIII. On the geography of cinchona.

From each of the above heads we propose to make a few extracts. Under the name *China* is understood, strictly speaking, only the bark of the genus Cinchona, which is found, hitherto, only on the continent of South America. But, in a more general signification, it includes also the barks of genera allied to the cinchona, *Exostemma*, *Cosmibuena*, &c. which are chiefly known in trade by the name of *China nova*. The tree which produces the genuine Peruvian bark, according to some of the oldest writers, was called by the natives of Peru *Gannanaperide* or *Gannaperide*. In Helvigius and some other old writers, the name *Chinanepide*, *Guananepide* occurs, and that writer states, from Casp. Caldera de Heridia (Illustr. et Observat. Med.) that the natives applied these names both to the tree and to the bark.

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* With Dr Gerson, editor of the *Magazin der auslandischen Literatur der gesammten Heilkunde*, &c. Hamburg,—a well conducted journal, deserving of attention, and which exhibits a detailed account of medical literature on the Continent, including also the works of English writers.

The name *an Holquahvilt* or Arbor Chilli, is less known, and indeed is less authenticated; it is noticed by S. Dale from Hernandez. Chomel observes, which is rather improbable, that the most common appellation for it in Peru was *arbre à enyvrer*, the intoxicating tree, on account of which property they placed the wood and bark, inclosed in a bag, in ponds or other still waters, to catch fish.

In early times, the Spaniards called the China tree, and perhaps also its bark, *palo de calenturas*, or *legno de calenturas de Lima*, which terms were translated by authors of other nations, *lignum febrium*, *lignum febris*, or *lignum antifebrile*. *Fieberholz*, *Bois des Fievres*, &c.; *Lignum de Lima* also occurs. In the time of Condamine the term *palo de calentura* was no longer in use, but instead of that, *arbol de la cascarilla*. About the end of the seventeenth century, *cascarilla della Oja* is mentioned, which no doubt was intended for *cascarilla de Loja* (Loxa.)

The word *china* or *kina*, was probably introduced into Italy from Spain, though its origin is not easily traced, because we receive very little account of it from the early Spanish writers. It is said, however, that *quina quina* is of American origin, though not used in Peru for the Peruvian bark, which was commonly called there *corteza*, or *cascara de Loxa*, or *cascarilla*. The natives of South America, and afterwards the Spaniards, called another tree Quina Quina, which, before the discovery of the Loxa bark, had been celebrated for its resinous gum or balsam, but more particularly the bark, on account of its febrifuge qualities. Condamine relates, that the Jesuits of *de la Paz* or *Chuquiabo*, were wont to collect the very bitter bark, with great care, and send it to Rome, where, under the name of Quina Quina, it was employed against intermittent fevers. But after the bark of the Loxa had, in a similar manner, been carried to Rome, the new febrifuge was confounded with the old one; nevertheless, as the new bark obtained the preference, and caused the other to be disused, the name Quina Quina was retained, although attached to the new bark or *febrifuge of Loxa*.

With regard to the origin of the word *Quina*, Condamine supposed it to come from the *Quichoa* language, the language of Peru in the time of the Incas, which he maintains, on the authority of an old dictionary of that language printed at Lima in 1614, wherein the word Quina aï, is translated by the Spanish word, *Mantelilla India.* But as that ancient language was poor in words, of course they were, metaphorically, applied to a variety of objects. Hence we may presume, that *quina*, which usually signifies a cloak or covering, might, when speaking of a tree, be intended for the bark. Should this derivation be approved of, there can be no difficulty in the repetition, *quina quina ;* for repetitions in that language, and we may add in some of the modern ones, were very usual, especially in the names of plants, in order to point out their great power. If, therefore, *quina* signified, in the Peruvian language, *bark*, Quina Quina might signify the *excellent bark*, or *bark of all barks*.

Among the synonyms, we find *Antiquartius Peruvianus*, or *Cortex antiquartius*, from its use in quartans ; also *pulvis febrifugus*, *pulvis febrium*, *China contra febres*, *corteccia della febbre*, *corteza febril*, &c. In France, for a short time, the following terms were used ; *Le Poudre de Talbot*, or *remede Anglais pour la guerison des Fièvres*, *Medicamentum Talbotii*, *seu Medic. Anglicanum*, *seu specificum Anglicum febrifugum*.

We may here also notice the names *Cortex China de China*, *Cortex Chinensis*, *C. Sinensis*, and *Gentiana Indica ;* the first of which names may probably, in Germany, have been long used in trade, for in the general *Preis Courant* of the city of Hamburg, we find the Peruvian bark always designated *Cortex China de China ;* as in the time of Morton the real bark was named *Gentiana Indica*, so, on the contrary, the Gentian root was termed *European China*, *quinquina d'Europe*. Helvigius also called the bark of the *ash*, *Cortex Fraxini*, *quinquina Europæa*.

During the early period of the introduction of the Peruvian bark, the bark of the *cascarilla* was also sold for the true kind, and was hence called *kina kina aromatica*, *cort. Peruv. griseus*, and *quinquina aromatique*. The following names are moreover used for this Cascarilla bark, *kina kina fœmella*, *China Chinæ fœmina*, *China China spuria*, *cort. Chinæ nova*, *China China falsa*, and what may appear extraordinary, *kascarilla falsa*.

In Germany, under the name *China nova*, and in England, of *spurious bark*, there is understood all those kinds of bark which do not belong to trees of the genus Cinchona. Besides the names just noticed, we may further add, that the Dutch call the Peruvian bark *china*, *kina*, *china bast*; the Danes, *china*, *kina*, *china bark*; the Swedes, *kina*, *kina bark*, *feber bark*, *Peruvianisk feberbark*; the Russians *chinoi korki*; the Poles, *kwinkinna*; the modern Greeks *kinna*; and in its native land it is called *quina*, or *cascarilla*.

The discovery and first introduction of Peruvian bark into Europe, is involved in so much obscurity, that it is difficult to distinguish truth from fable. Our author gives some very curious information on this subject, taken from the early writers, which, not being commonly met with, may be noticed here. The year 1640 is quoted by Bollus, a Genoese merchant, one of the oldest writers on the subject, * as the year in which the Peruvian bark was brought to Europe. But this does not appear to be the case; for Sebastian Badius, a Genoese physician, gives extracts from the letter of D. Joseph Villerobel, a Spanish physician, according to which, the fever bark had come to Spain in 1632, therefore eight years before the above time. † If we accept of Villerobel's testimony, the Spaniards must have been seven years in possession of the bark before they used it. A priest at Alcala was the first who, in the year 1639, tried the new febrifuge in Europe, and approved of its virtues. The story of the Indian who drank of water into which one of these trees had fallen, and was cured of his fever, is entitled to as much credit as some other medical stories; they cannot be contradicted. Neither is it of much consequence to us to determine, whether the discovery of its efficacy belongs to the natives, or to the first Spaniards who, unfortunately, landed among them.

The cure of the Viceroy's lady, the Countess of Cinchon, by means of the bark, of course brought it into notice, and, in return, handed her name down to posterity. This occurred about the year 1638, one year before the Count quitted his government. Contrary to the assertion that the Peruvian bark acquired, on the arrival of the Viceroy and his lady, the same celebrity it had in South America, it is said by Villerobel, that though the first trials of it fully succeeded, and the Count offered to supply the physicians of Madrid with the bark, yet he did not find its fame increase much; nor could the consumption of it have been very great, since it appears, that, many years after the Count's death, a large quantity of the bark, imported by him, still remained in the hands of his family.

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* Ant. Bolli's Letter on the use of the China bark, written in Italian, appeared in 1649.

† Sebastianus Badius, Anastasis corticis Peruviani, seu kinæ kinæ defensio contra Chifletium et Plempium. Genuæ, 1663.

In 1642, there appeared in Spain a publication upon this subject,[*] perhaps the first which was published. The author, Barba, professor of medicine at Valladolid, gives instructions for the use of the bark in intermittents, and labours hard to confute those who were averse to its use. It may be, however, asserted, that the general spreading of the China was owing to the activity of the Spanish Jesuits, who, by their great influence, supported the credit of the bark, which was sent in considerable quantities by the brothers of that order. One of this society in Italy, a Spaniard by birth, Juan de Lugo, created Cardinal in 1643, assisted the good cause with all his authority. At his request, Innocent X. ordered the bark to be examined, and as his first physician[†] declared it to be not only innocent but salutary, all medical opposition ceased in Rome, which, in fact, became its chief mart. In 1649, but according to Gaudentius Brunaci 1650,[‡] the provincial father of the Jesuits, brought with him from America a large quantity, and a great assembly of the order being held at the same time, a good opportunity was given of spreading the bark all over Europe, by the brothers who returned to their homes.

About this time the bark began to be adulterated, and fell into such discredit at Loxa, that they would not give more than half a piastre a pound, for what before had obtained from four to six piastres at Panama, and twelve at Seville. There appeared also, about this period, at Rome, some directions in the Italian language for the use of the bark, which is probably the second *schedula* Medicor. Romanorum, noticed in Baldinger's Magazine, and published by the Roman physicians, February 17th 1651. The first was in 1649. An extract of the above from Chifletius, *pulvis febrifugus orbis Americani ventilatus*, Bruxell, 1651, is not without some interest. "The bark comes from Peru, and is called China Febris. It is used against tertian and quartan fevers, after they are fully formed, and is prepared as follows: Two drachms of bark, finely powdered, are to be infused in good white wine, three hours before the expected paroxysm, and the whole to be taken as soon as the slightest symptom of the attack is perceived, and the patient ordered to bed. Almost all who have used this remedy have recovered; but the bowels must be previously cleansed, and, for four days after taking it, no other medicine must be used. It is, moreover, not to be used without medical advice, nor contrary to the measure or time above given." The above very temperate statement might serve as a model for those who now introduce new remedies. It also shows how little the practice in intermittents differed from that of the present time. Bartholin states, that, in 1653, many thousands had been cured at Rome, by the bark, of malignant, single, and double quartans. The above concludes the most essential circumstances which occurred in Spain and Italy during the first ten or fifteen years after the introduction of bark.

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[*] Vera Praxis de curatione tertianæ, &c. Hispali, 1642. 4.

[†] Archiater Pont. Max. Innocentii X. pulveris naturam et indolem, suasu Cardinalis de Lugo, diligenter indagavit, et propriis experimentis edoctus, non innoxium solum, sed etiam saluberrimum esse deprehendit. T. Bartholini Hist. Anatom. et Med. Cent. V. Hafniæ, 1661.

[‡] De Cina-cina, seu pulvere ad febres, syntagma physiologicum. Venetiis, 1661. 8.

By means of the Jesuits, the bark was known in Belgium soon after its introduction into Italy, and seemed likely to obtain universal suffrage, when a trial of it, partly unsuccessful, hurt its reputation. In the harvest of 1652, Leopold, Archduke of Austria, and governor of the Netherlands, was seized with a double quartan, for which the bark was administered, according to the directions of the *schedula Romana.* The cure, however, was only temporary, for, after ceasing thirty days, the fever returned. The Archduke ordered his physician, John Jacob Chifletius, to publish a history of the case,—a command, probably, not unacceptable to such an opponent of this remedy, in order that people might be dissuaded from the use of so deceitful a medicine. In this work, Chifletius maintains, that, in Brussels, not a single case of fever had been permanently cured; and further, that in Naples, Florence, Madrid, Vienna, and Paris, they accused this remedy, not only of having been found ineffectual, but even hurtful. This work of Chifletius caused him to receive, from his colleagues, as splendid compliments as though he had freed the world from a monster, or a plague. In Paris, this book met with an uncommonly favourable reception, and was immediately reprinted there. How little Chifletius deserved such encomiums, appears from one of his chief reasons of opposition against the China, being its introduction by the Jesuits; * but he was not ashamed to add, that if it came into general use, and agues should be cured at so trifling an expence, physicians would find their incomes diminished.

In a letter of the 9th April 1652 to H. Bardus, from a Professor Chysostomus Magnenius, no new arguments against its use are alleged; but it is merely added that the bark, indeed, stopped the fever, but produced no sensible evacuation. The writer, however, was not much regarded. A French Jesuit, Honoratius Fabri, not a physician, appeared as the first opponent of Chifletius; at the desire of the Cardinal de Lugo, * his work was printed at Rome in 1655, and was not deficient in very bitter satire. He wrote under the feigned name of Antimus Conygius, and, very honourably, reprinted the work of Chifletius with his own. He soon found a violent antagonist in Vopiscus Fortunatus Plempius, a Belgian physician, whose work appeared under the name of Melippus Protimus, (Antimus Conygius, Peruviani pulveris febrifugi defensor, repulsus, 1655.)

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* Another name for the bark, *le poudre des Peres*, pulvis patrum, rendered it equally obnoxious to those of the reformed religion, even to those of the higher orders. They were even terrified to use it, suspecting it was not a natural production, but an artificial devilish remedy, composed by Jesuitical art. An account of this kind, respecting two matrons at London, is given by Badus in his *Anastasis.*

Plempius wrote more violently than even Chifletius, and gave many instances of failure, and even bad effects of the bark. But he is accused by Badus of forging a letter from the physician to the king of Spain, to bring the bark into discredit. In 1655, Sebastian Badus wrote upon bark; but in 1663, he became particularly its defender, by his Anastasis Cort. Peruv. He strove especially to contradict Plempius, by whom he had been attacked, and satirically invited to celebrate the funeral obsequies of the China. But a more important and more intelligent defender of the China appeared in 1659 at Antwerp, Dr Roland Sturm, and who, in despite of his opponents, contributed greatly to bring the bark into more general use. Sturm having seen it at first only in the form of powder, supposed, with many others, that it belonged to the mineral kingdom, and others again to the Lignum sassafras, or Radix Chinæ. Sturm observes, that in 1650 the China had reached such a price as scarcely to be obtained for its weight of gold; and in March 1658, he says twenty doses were sent to Paris for the price of sixty guldens. The great scarcity, and consequent high price, appear to have been favourable to the monopoly of the Jesuits. In Copenhagen, Bartholin complained that he had only been able to procure three doses from some friends. Probably it was not more common in England, as the physicians strongly opposed the new remedy. About the end of 1658, a public advertisement announced that F. Thomson, an Antwerp merchant, had brought over the fever bark, which he sold, with directions for its use; a respectable physician, Dr Prujean, vouched for the China being genuine.

Chomel relates, that Barbeyrac, a celebrated physician at Montpellier, was the first who introduced the bark into France with great success; and we find at Lyons in 1664, the duty

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* This champion of the bark is said to have received upwards of a thousand letters from patients cured by his remedy (Pulvis Cardinalis,) a species of incense very acceptable, and not uncommon to the trumpeters of new remedies.

upon bark was fixed at three sous a pound, a proof that it was not a rarity there.

In 1665, a fever remedy was sold by an apothecary, B. Alary, at Grasse, in Provence, under the name of Remede Provençal en tablette, which attracted the notice of the French government. After some successful trials, made in the Paris hospitals, Louis XIV. gave a considerable reward to the discoverer, and fixed upon this infallible remedy, as it was termed, a certain price. According to Weinmann, (Phytanthoza Iconographica oder Vorstellung von Pflanzen und Blumen, Regensburg, 1739,) this Provençal remedy consisted chiefly of an alkaline salt, and therefore it was recommended to be kept dry, and inclosed in boxes with bran. It is said the Marquis Louvois, minister of war, sent, in the space of two months, 2000 such boxes to the French camp. An Englishman, Robert Talbor, as he wrote his name, though sometimes called Tabor, or Talbot, produced a new remedy, which consisted entirely of the China. This person was originally pupil to an apothecary, but studied afterwards, perhaps for only a short time, at Cambridge, and then began his fever-cures in Essex, upon the sea-coast. His remedy became so celebrated that he was called to London, and settled there about 1671. His fame increased in proportion with the envy of the physicians; which, however, was put a stop to, July 1678, by an order of Council. Being sent for to France, among his most distinguished cures may be reckoned those of the Prince de Condé, and Colbert, minister of finance, noticed by Fontaine in his *Poeme du Quinquina.*[*]

In 1679, according to Helvigius, the Dauphin, son of Louis XIV. suffered from an ague which the Paris physicians could not cure. Talbor was called to Paris, and the physicians thinking it proper to examine his scientific acquirements, began by asking him, "Quid est febris?" The Englishman frankly answered, "I do not know; you gentlemen may explain the nature of fever, but I can cure it, which you cannot." This finished the "examen rigorosum pro licentio practicandi." The Dauphin took the remedy and was cured. This is a very good story; but, if true, it would certainly have obtained notice in the poem: Poets have been in all ages staunch pointers. The same account adds, that Louis, to reward Talbor's merit, and make the remedy more useful, bought his secret for 2000 louis d'ors, and an annual pension of 2000 livres. Talbor also obtained letters of nobility, and a ten-year's monopoly of his remedy, which was forbidden to the French physicians under a severe penalty.

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[*] Nous lui devons Condé,
Et toi que le China guerit si promptement,
Colbert ———.

By these means Talbor acquired great wealth, and his nostrum rose in price. At Paris, it is said, a single dose cost a louis d'or, and a pound cost 100 louis's. He attempted also to gain a monopoly, and suppress other remedies like his own, by procuring all the bark in Paris, and the chief towns in France. The surgeons and apothecaries, on their part, not to be deprived of so celebrated a remedy, procured a considerable quantity from Rouen and Bourdeaux. Andry and Vilanius, two celebrated druggists in Paris, sold their stock of China for 200 livres a-pound, which occasioned a total want of it for fourteen days, until a small supply was introduced, when the price was fixed at 100 gold pieces a-pound. But afterwards, when a large supply had come in from Spain, and Talbor's remedy had lost the charm of novelty, China gradually fell in price, so that about 1682 a pound cost only between fifty and sixty livres. In justice to Talbor, it must be stated, that he always declared, publicly, that the bark was a noble and safe remedy when properly prepared, and skilfully used. Many of his contemporaries, Sydenham, Morton, Harvey, and others, were his decided opponents. Ray, however, gives the following testimony in favour of Talbor. "Ob suspiciones nescio quas in crimen adduci cœpit (cortex) et paulatim in desuetudinem abire; donec nuperis annis, Dominus Robertus Talbor dosi ejus valde aucta non minus felici successu quam incepto audaci, febribus omnibus profligatis, usum resuscitavit. Hic enim non intra scrupulos subsistebat, sed ad drachmas et uncias adscendebat, indeque voti compos factus, magnam et sibi et pulveri famam conciliabat." Raii Hist. Plant. ii. p. 1797. For more information respecting Talbor's remedy, the work of Nic. de Blegny, published by order of Louis XIV. and those of the Paris physicians, Manginot and Fagon; of Montpellier, Raymond Restaurant, and Jac. Spon of Lyons, may be consulted.

At a very early period, as has been already noticed, very gross deceits were practised with this remedy, even in its own country; for, according to Condamine, in 1690, at Piura and Payta, the nearest ports to Loxa, many thousand pounds of China bark were lying so adulterated, that no one would ship it off. This occasioned the ruin of Loxa.

The Cascarilla bark, called *kina kina aromatica* and *pulv. Peruv. griseus*, was in all probability most frequently sold for the genuine kind. The *kina kina fœmina*, is also noted by old writers for being mixed with the genuine kind. Chomel and Marret inform us, that about 1732, the Alder bark, *Alnus glutinosus*, was used as a mixture; but was easily distinguished by being smoother, and of a brighter colour than genuine China, and also by being of a brighter red in the inside. Condamine mentions the bark of the Service tree, *Alisier*, *Sperber-Baum*, being used to give weight to the China; this, however, was more astringent, internally redder, and externally whiter than the genuine fever bark.

From the time of Condamine, to whom we are indebted for the first satisfactory account concerning the Cinchona, to the present time, our information has been increased by Jussieu, and especially by Humboldt. The latter observes, that all the bark obtained in trade came from Loxa, Guancabamba, and Jaen, perhaps also from Riobomba and Cuenca, shipped from the harbours of the South Sea. But our author remarks, that in the Hamburg *Relations-Courier*, an old weekly paper, of 1775, 6, and 7, he saw several vessels noted as coming direct from Havanna and Carthagena, with considerable quantities of bark on board. In 1772, the China bark was discovered by Don Jose Celestino Mutis, near Santa Fé, though he did not reap the reward of this important discovery, which was claimed four years afterwards by Ruiz, a physician at Santa Fé. A similar disappointment had before occurred to the celebrated Jussieu, who, after a residence in South America from 1739 to 1771, during which time his unwearied application had been of infinite service to science and to the country he visited, returned without notice or reward either from the government which sent him there, or from that which detained him there for its own benefit ! ! ! As a proof of what value the new Peruvian republic attach to this celebrated production of their country, a tree of Cinchona is placed in one of the three fields of their arms; in the second, is the celebrated Vicũna; and in the third, but beneath the others, as if of inferior value, is a cornucopœia, from which fall gold and silver coins.

During the late war, when the ports of the Continent were so blockaded as to prevent the importation of transatlantic produce, various surrogates were sought after, but none excited more attention than a substitute for Peruvian bark. How vain were their apprehensions of a total want of this article to supply the trade, appears hence, that our author declares, even during the time of the embargo, the quantity of genuine bark which had accumulated in Hamburgh alone was so great, as to suffice for the supply of the whole of Europe for several years. This circumstance was unknown to the public in general. Azara, likewise, to show how little reason there is to dread a failure in the supplies from South America, asserts, that in the Andes there is a store for centuries; and adds, there are more than fifty places from which not a pound of bark has been taken. The fear, however, of what might happen, had induced different academies to offer premiums for the discovery of the best substitutes; one of which prizes of 100 ducats, given by the Emperor of Austria, was gained by Dr Schrader, of Nordhausen, who proposed a species of Lichen, Wandflechte, Lichen parietinus, which in smell much resembles the Peruvian bark. A publication on this subject by Dr Sander[*] we have seen, containing several well authenticated cases of its efficacy in intermittents. None of these remedies, however, has supported its credit for any length of time; nor is it perhaps to be expected that we shall ever be able to imitate the powers of the bark exactly. For though chemistry has detected the component parts of bark, and has found some of these principles in other vegetables, yet, like the artificial mineral waters, compared with the natural, a something efficacious is still wanting. Moreover, our hopes seem less likely to be fulfilled, since, according to a principle laid down by Linnæus, and prosecuted by De Candolle and others, that only plants belonging to the same natural families possess the same constituent parts; and as the genus Cinchona alone possesses the cinchonin and quinin, in which the active principle of the bark appears to reside, for neither of them can be detected in the genera Exostemma and Cosmibuena, so nearly allied to the Cinchona, the chance of finding a substitute becomes less. Subjoined is a list of upwards of one hundred indigenous plants, which have been proposed at various times as surrogates, the chief sensible qualities of which are bitterness and astringency, sometimes united with a slight degree of acrimony. Of foreign substitutes, about thirty species are enumerated; but were they even equal in virtue to the bark, the objection of another blockade by sea militates equally against them as the bark.

Some time before Condamine, a countryman of ours, W. Arrot, a Scottish surgeon, described the bark-tree with tolerable accuracy,[†] and first noticed the various lichens, called by the Spaniards Barbas, which grow upon it. These give the peculiar musty smell to bark, and are recommended by Marabelli[‡] to be removed, as possessing no power whatever, and of course weakening the bark. Badus, one of the early writers, gives an opinion, entertained by some, that the febrifuge power of the bark resided also in the seeds of the tree, called by the Spaniards, *pipitas de quina*, and which resemble the seeds of the gourd, (Kurbis;) he further adds, that the tree, or its bark, yields a resin which Condamine thinks must refer rather to the tree which yields the Peruvian balsam, and commonly called in Peru *china-china*. Arrot mentions four kinds of bark, though he could find only two different species of trees. From Condamine's description, Linnæus made his definition of the genus Cinchona, as it appeared in the second edition of the *Genera Plantarum* in 1742, and quoted, as Cinchona officinalis, the only one then known to him, in the two first editions of the *Species Plantarum.** Linnæus knew only two species of Cinchona, the C. officinalis and Caribæa, now Exostemma Caribæa, but they soon increased in number; Vahl, in his treatise, 1799, notices nine kinds; Lambert in his first Monograph, 1797, eleven; Rohde in his Monograph, 1804, fourteen; Persoon in his Synopsis Plantarum, 1805, twenty-one; the authors of the Diction. des Sciences Medicales, 1820, enumerate twenty-six; but Lambert, in his Illustrations of the Genus Cinchona, 1821, has only twenty-two kinds. In former authors, the genera Cinchona and Exostemma are not distinguished; but this has been attended to in the Systema Vegetabilium of Roemer and Schultes, wherein twenty kinds of Cinchona, and twelve of Exostemma are mentioned. In the latest edition of the Systema Vegetabilium Linnæi, by K. Sprengel, the Cinchonas are reduced to fifteen, and the Exostemmas increased to sixteen.

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[*] Die Wandflechte ein Arzneymittel welches die Peruvianische Rinde nicht nur entlehrlich macht sondern sie auch an gleichartigen Heilkraften uebertrifft, von G. C. H. Sander, Sonderhausen, 1815. The plant is figured in Sowerby's English Botany, *Parmelia parietina*, plate 194.

[†] Philosophical Transactions, Vol. xl. p. 446.

[‡] Analisi Chimica della China gialla. Pavia, 1795.

It was the author's intention to have noticed, in this section, only those trees producing the genuine bark, which now belong to the genus Cinchona; but as formerly many of the genus Exostemma were included, and their barks used with the genuine fever bark, he thought the genus Exostemma ought not to be passed over. The botanical descriptions, in Latin and German, are taken from Sprengel's Systema Vegetabilium. The species enumerated are as follow: 1. *Cinchona Condaminea.* 2. *C. Lancifolia.* 3. *C. cordifolia.* 4. *C. rotundifolia.* 5. *C. ovalifolia.* 6. *C. purpurea.* 7. *C. pubescens.* 8. *C. Micrantha*

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* It is remarked by Humboldt, in the Berlin Magazine of the Society of Friends of Natural History, that in 1761 Mutis obtained the first dried specimen of the yellow bark, *Cinchona cordifolia*, from Loxa, according to which, as imparted by Mutis to Linnæus, the genus Cinchona was fixed. Linnæus, in the description of his Cinchona officinalis, has joined, without knowing it, the Cinchona Condaminea of Humboldt and Bonpl. and the C. cordifolia of Mutis. This applies only to the Cinchona officinalis of Linnæus, received as such in the Syst. Natur. ed. 12, and in the Syst. Veget. ed. 13. Therefore, very justly, with the present Cinchona Condaminea, only the C. officinalis of the Spec. Plantar. ed. 1. and ed. 2. and Syst. Veget. ed. 10. is cited as a genuine synonym.

9. *C. Humboldtiana.* 10. *C. Pavonii.* 11. *C. macrocarpa.* 12. *C. Mutisii.* 13. *C. hirsuta.* 14. *C. magnifolia.* 15. *C. caducifolia.* 16. *C. oblongifolia.* 17. *C. acutifolia.* 18. *C. stenocarpa.* 19. *C. dichotoma.* 20. *C. grandiflora.* 21. *C. acuminata.* 22. *C. rosea.* 23. *C. ferruginea.* 24. *C. Vellozii.* 25. *C. Remijiana.* 26. *C. Brasiliensis.* 27. *C. excelsa.*

Of the genus Exostemma we have the following species :

1. *Exostemma Caribæum.* 2. *Ex. longiflorum.* 3. *Ex. floribundum.* 4. *Ex. brachycarpon.* 5. *Ex. Peruvianum.* 6. *Ex. capitatum.* 7. *Ex. Philippicum.* 8. *Ex. corymbiferum.* 9. *Ex. lineatum.* 10. *Ex. coriaceum.* 11. *Ex. angustifolium.* 12. *Ex. corymbosum.* 13. *Ex. dissimiliflorum.* 14. *Ex. parviflorum.* 15. *Ex. cuspidatum.* 16. *Ex. australe.* The last named finishes the species of Exostemma received by Sprengel. Next follows the Cinchona of Wright, hitherto called *Triflora*, of which Lambert expressly says, that it belongs to the Cinchonas of the islands, and bears the nearest resemblance to the *Cinchona floribunda* of Swartz.

The Terminology contains much useful information respecting the terms used in commerce, to designate the various qualities of bark. The synonyms also are added, in ten different languages, a work of labour which shows an intimate practical knowledge of the subject. Our limits do not permit more than to give a specimen of the manner in which it is executed, by taking the two first articles.

1. *China vera*, (aechte China.) Under this head is included every kind of bark found useful in the cure of intermittents, or according to the late experiments in chemistry, such as contain either quinin, or cinchonin, or both. It is named in Italian, China vera ; Spanish, Quina verdadera ; Portuguese, Quina verdadera, Q. genuina ; French, Quinquina veritable ; English, genuine bark ; Dutch, echte Kina ; Danish, ægte China ; Swedish, agta Kina ; Russian, not expressible by our types.

2. *China Spuria*, (falsche China.) This includes all those kinds, not genuine, known in trade under the name of *China nova*, from Martinique, St Lucia, &c. which do not belong to the genus Cinchona, but to other kindred genera, Exostemma, &c. It is termed in Italian, China falsa, C. spuria ; Spanish, Quina bastarda ; Portuguese, Quina bastarda, Q. espuria ; French, Quinquina batard, faux Quinquina, Q. nova ; English, spurious bark ; Dutch, valsche Kina of by soort ; Danish, uægte China ; Swedish, oagte Kina ; Russian, ———. The following titles, omitting the definitions, and most of the foreign synonyma, will afford an idea of the various sorts of bark distinguished in com-

merce. 1. China naturalis, naturelle China oder China in sorten, Peruvian bark in sorts, rough Peruvian bark. 2. China selecta, ausgesuchte China, picked bark. 3. China dura, harte China, hard bark. 4. China fibrosa, holzige China, woody bark. 5. China ponderosa, schwere China, heavy bark. 6. China levis, leichte China, light bark. 7. China cum cortice exteriora, bedeckte China, coated bark. 8. China nuda, unbedeckte China, uncoated Peruvian bark. 9. China lichenibus obsita, chagrinirte China, Peruvian bark, grey and silver coated. 10. China rimosa, Kerben auf der China, cracked, or fissured bark. 11. China nodosa, Warzen auf der China, knotted bark. 12. China saturata, dunkle China, dark and bright bark. 13. China pallida, blasse China, pale bark. 14. China plana, platte China, in platten oder flachen Stucken, flat bark. 15. China tubulata, röhrigte China, China Röhren, quilled bark. 16. China convoluta and subconvoluta, gerollte zusammengerollte China, close and compact quills;—these terms are applied according as the edges of the quill touch, or lie upon each other. 17. China involuta, geschlossene Röhren, close and compact quills. 18. China tubulata longa, lange Röhren, long quills. 19. China tubulata brevis, kurze Röhren, short quills. 20. China tubulata, tenuis, crassiuscula and crassa, picked bark, fine, middling, thick and coarse quills. 21. Fragmenta Chinæ, small fragments. 22. China detrita, very small fragments. 23. China pulveriformis, China Staub, dust. 24. Pulvis Chinæ, China pulver, bark powder. Other distinctions are made from the transverse fracture of the bark, according to which, it is fractura levis-plana, resinosa; crisp, short and smooth; resinous, stringy, fibrous.

The description of the bark itself, according to its component parts of epidermis, cortex, liber, alburnum, is very accurate; and their application in selecting the different kinds is pointed out at considerable length. The aid of colour is also brought forwards, the distinctions of which are given according to the terminology of Hayne.[*]

Notwithstanding the great variety of barks enumerated, as distinguished in commerce, our author, after much consideration, and numerous experiments, is convinced that they may all be reduced to eight kinds. The "*genuine bark*" of old writers, until the time of Condamine, or a little after, did not, probably, belong exclusively to the present C. Condaminea, but also to other trees related to it. Whatever kind was shown to the druggists, apothecaries, or physicians of that time, all passed for the "*only genuine fever bark*," so much celebrated by Morton, Sydenham, and others.

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[*] Dr F. G. Hayne de coloribus corporum naturalium, præcipue animalium vegetabiliumque, &c. Berolini, 1814.

The same occurred after Linnæus had determined his C. officinalis: every species of bark was classed as the officinal. What these species might be, we can only now surmise; probably they consisted chiefly of the present Loxa, Rubra, Huanuco, Regia (?) and Ten.

The eight kinds fixed by the author are, 1. *China rubra*, red bark. This is almost universally said to be the bark of the *C. oblongifolia;* but M. Von Bergen is decidedly of opinion that the species which furnishes it is not yet ascertained, and that the *C. oblongifolia* yields the *China nova* of Santa Fe. 2. *C. Huanuco*, silver Huanuco. This is said by Hayne to be the bark of the *C. cordifolia*, but it is doubtful whether it does not belong to a new species. 3. *C. regia*, yellow bark. Mutis, Humboldt, and others, derive this bark from the *C. lancifolia*,—Professor Hayne from the *C. cordifolia*, and Von Bergen ascribes it to an undescribed species. 4. *C. flava dura*, hard Carthagena bark. This Von Bergen considers as without doubt the bark of the *C. cordifolia*. 5. *C. flava fibrosa*, woody Carthagena bark. Source unascertained. 6. *C. Huamalies*, rusty bark. Source unascertained. 7. *C. Loxa*, crown bark, so called from its having been destined for the Spanish court, and has only been in use since 1804. This is obtained principally, if not entirely, from the *C. Condaminea*. 8. *China jaen*, ash (coloured) bark. The bark of the *C. pubescens* or *ovata*. To these he adds another kind, 9. *China pseudo Loxa*. The bark of the *C. lancifolia*, or of the *nitida* and *lanceolata* associated with it. From the attentive perusal of this chapter, we are convinced that we are still very far from possessing that accurate knowledge of the genus Cinchona, which is necessary for referring each of the varieties of the bark which occur in commerce to its botanical species; nor do we conceive that this problem will be satisfactorily resolved until some draftsman, such as Mr Audubon, * makes on the spot a series of drawings, not only of the fructification and foliage, to settle the botanical characters, but also of the barks of each variety as prepared for the market.

Much valuable matter is contained in the descriptions of the above kinds, but not admitting of an extract, though we shall insert the different heads of description. 1. General appearance of each specimen of bark. 2. Synonyms. 3. Form of the pieces. 4. Layers or strata. 5. Appearance of outer surface; *a*, quality, *b*, colour. 6. Of the inner surface; *a*, quality, *b*, colour. 7. Fracture; *a*, longitudinal, *b*, transverse. 8. Smell. 9. Taste. 10. Powder, (colour.) 11. Mode of importation in chests or mats, (seronen.) 12. Lichens found upon the surface of each specimen. In the list of the various lichens found on each species, the system of Acharius is closely followed; but the work of M. Fee, of which an analysis is given in the preceding article, is also referred to.

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* We have taken the liberty of introducing this gentleman's name, as he is now in Edinburgh, and has delighted us with an inspection of his most unequalled drawings of the birds of North America, in which we were struck with his power in giving the perfect characters of the barks of the various trees introduced into his pictures.

The mode of obtaining bark in the country next appears; which is followed by a very important paper, by Professor Pfaff, on various reagents used with bark, and the mode of procuring the salts of China, by H. S. von Santen, from both of which a few extracts may be made.

The *China rubra* contains both the alcaloids, with a superabundance of cinchonin. It is unchanged by solution of glue; is made very turbid by emetic tartar and tincture of galls; coloured green by muriate of iron, but not rendered turbid.

China Huanuco contains only cinchonin; is unchanged by glue, precipitated by emetic tartar and tincture of galls; changed only to a slightly yellow green by muriate of iron.

China regia contains only quinin; is rendered but little turbid by solution of glue; very turbid by emetic tartar and tincture of galls, and slightly changed to green by muriate of iron.

China flava contains both alcaloids, in varying proportions, but with a preponderance of cinchonin. Is almost unchanged by emetic tartar, solution of glue, and muriate of iron, but rendered extremely turbid by tincture of galls.

China Huamalies contains only quinin; is rather turbid with emetic tartar and glue, more so with tincture of galls, and coloured more or less green by muriate of iron.

China de Loxa is poor in alcaloid, though containing both kinds, but with a superabundance of quinin; is rendered very turbid by tartar emetic, animal glue, and muriated iron, but little changed by tincture of galls.

Ten china has no perceptible portion of alcaloid; is rendered particularly turbid by solution of glue and muriated iron; is unchanged by tincture of galls.

Mr von Santen's mode of obtaining the sulphate of china must close our extracts from this important work.

One pound of coarsely powdered bark was boiled three times; the two first times with eight pounds of water, and two drachms of sulphuric acid; the last time with six pounds of water, and one drachm of sulphuric acid. The three decoctions being mixed, and allowed to stand twenty-four hours, became clear, and deposited a considerable sediment, from which it was separated by passing through a cloth. It was then mixed with two ounces of slacked lime, of the consistence of pap, which occasioned a strong alcaline reaction. There formed, immediately, a precipitate, which was collected on a filter and pressed, afterwards dried and finely powdered. This powder was three times boiled with alcohol of eighty per cent.; the two first times with forty-eight ounces; the last with thirty-two ounces; and the decoction passed, boiling, through filtering paper. The last extract was scarcely perceptibly better: and, after various experiments with the residuum, no remains of china salt were discoverable. These spirituous extracts were drawn off to about six ounces of residuum, from which, when the bark contained both the salts, quinin and cinchonin, the latter had completely separated, in consequence of its more difficult solubility in alcohol; but the quinin continued dissolved in the remaining weakened alcohol, though it separated in a resinous form, by further evaporation, and by water and sulphuric acid it was changed to a sulphate. This, as well as the cinchonin, was collected upon filters, and carefully dried. The remaining lye, or wash, of the sulphate of quinin, was again evaporated, and mixed, as at first, with some animal carbon in powder, filtered, and set aside to crystallize. It happened, not unfrequently, that, after some days, only gypsum was separated, which showed itself by being insoluble in alcohol, and imparting to it no bitter taste. Sometimes, however, both quinin and gypsum were crystallized together in these lixivia, and afterwards separated by alcohol. If the bark contained cinchonin exclusively, still the remaining alcohol, water, and acid, were examined for quinin, but so trifling an appearance of it was always found, that its separation, in this way, was impossible. Even with tincture of galls, when dried, sometimes not more than from one to three grains of a precipitate were procured.

If quinin was the alcaloid solely contained in the bark, neither during the evaporation of the alcohol, nor after the cooling of the remainder, did crystals separate, which sufficiently proved the total absence of cinchonin.

Finally, when the spirituous extract of the powdered calcareous precipitates neither manifested itself by perceptible bitterness, nor by evaporation produced crystals; and when the resinous residuum being treated with sulphuric acid and water, gave no sulphate of quinin, and, finally, with tincture of galls, produced no precipitate, or a very trifling one, the absence of sulphate of quinin was considered as decided.

An atlas of large folio size accompanies the work. It contains ten tables, which are drawn up with singular neatness and accuracy, exhibiting the results of the individual experiments with a great variety of specimens of barks of the same denomination, and the discrepancy often to be observed in these results, furnishes sufficient grounds for caution in hastily drawing general conclusions. The plates are eight in number; the last is taken from Humboldt, and intended to illustrate the botanical geography of the genus Cinchona; the other eight represent a variety of specimens of each of the kinds of the Cinchona bark known in commerce. In respect to drawing, and especially to colouring, we know of no representations of such a subject at all to be compared to them. Indeed, we cannot sufficiently admire the enterprise of the author, who has ventured upon so expensive an undertaking; and, as we fear he is not likely to be indemnified in any other way, we are confident that he will be rewarded by the approbation of all who are interested in the progress of pharmacology.

ART. VII.—*Reise durch die Schweiz, Italien, &c. Travels through Switzerland, Italy, France, Great Britain and Holland; with special reference to Hospitals, Medical Practice, and the state of Medicine generally in these countries.* By Dr C. OTTO, Physician at Copenhagen. 2 Vols. 8vo. Hamburg, 1825.

WE must apologise to our readers at home for occupying our space and their attention with the following account of a work which cannot possess much interest in their eyes. We are induced to notice it chiefly on account of our Continental friends, whose good opinion of our school here might be shaken, if the author's misrepresentations were allowed to pass without comment.

We do not take it up, therefore, with the view of imparting any portion of the wonders seen, or of the instruction received by Dr Otto, during a three years' trip over civilized Europe. Neither shall we presume to pronounce upon the value and credit of his book in a general point of view. But we think it our duty to step forward in defence of the medical institutions of this part of the kingdom, which have long been an object of interest to the people to whom his work is addressed, and to caution his readers against the opinions, which, with very imperfect opportunities of observation, and with prejudices which we imagine we can trace to their source, he has ventured to express of us. We feel ourselves the more strongly called on to come forward, that Dr Otto really writes a very entertaining book ; shows a superior mind and a knack at travel-writing; gives a fair account of other countries where he thought proper to reside long enough to make himself a competent judge ; and uniformly speaks of his reception with a grateful enthusiasm, which may lead his readers to conclude, that, as he was everywhere well received, he could hardly fail to have ample opportunities of observation, and to observe with a judgment biassed in favour of what he saw.

As we concede to our author the merit of being not a bad travel-writer, and consequently of being a good traveller, it is difficult to imagine upon what principle he planned his excursion to Edinburgh. A person who wished to judge impartially of the Scottish medical institutions, of Scottish society, and Scottish beauty,—for every thing is included under the objects of Dr Otto's visit,—would naturally choose a time when all might be seen to the best advantage. Instead of that, he made his appearance in the beginning of summer, when the University and the school of the College of Surgeons are almost deserted, and when the inhabitants have retired to recover from the dissipations of the winter. He contents himself, too, with a single month's residence among us, conceiving with singular felicity, that our manners and establishments, like our town, may be seen and known at a glance. Let us add our suspicion, that he had unfortunately been entrusted to the hands of one of those disappointed spirits, alas ! too common here, who make amends for their ill luck by decrying the management of every matter in which they do not rule or participate ; and it is then easy to account for Dr Otto having carried away so unfavourable an impression of his Edinburgh visit.

When a compiler of travels cannot remain long enough in a country to become acquainted with it, the only rule of prudence is to confine himself to generalities. But Dr Otto seems to have been well aware, that it is impossible in this way to convey a good idea of the character and institutions of a people ; he accordingly plunges fearlessly into the minutest particulars ; and he has in consequence contrived to imbibe some very strange notions of the habits and sentiments of the place, and to pocket some extraordinary memorandums of the state of medicine at its schools.

For example, he says, " it is not to wondered at, that the Scotch are constantly thinking of their former independence," —a thought, which, to save the credit of our common sense, we beg to inform his readers, has troubled very few thinking Scotchmen for the last seventy years,—and which it is easy to see Dr Otto found only in that paramount authority with foreigners, the tales and poems of Sir Walter Scott. It is to the same source that we must trace another error, which is still more inexcusable, though very common among foreigners, who, like him, spend a few weeks here,—that the Highlands form the most important part of Scotland, and that the character of the Highlanders is that of the nation at large;—an error almost as absurd, as if a traveller should take the Gascons for examples of the general population of France. If our author had been at the pains to look round him and consult our history, he would have found that although the Highlanders make good soldiers and excellent porters, they have done very little for the literature, science, commerce, or manufactures of the country.

These are blunders into which no one would fall who had studied to advantage the people among whom he lived; and they will giye some insight into the credit due to his talent for faithful observation in other things. But let us proceed to our proper object, his account of the University, and particularly its medical department.

Following the author's own order, we find he states, that the library is open for one hour daily to students who choose to read books there, but that the books are lent out to none but professors. This is incorrect. Although on account of the great number of our students, it is impossible to make the library so accessible to them as might be desired, every student has a right to borrow books, and the reading-room is open to him five hours a-day. The medical students, he adds, amount to 500. In the year of his visit they were 800, and now they are 1000.—He finds fault with the system of clinical instruction, because it is conducted by several of the professors in rotation; if he had reflected one moment, he would perhaps have traced to this admirable system, that freedom from the trammels of authority which forms one of the most distinguishing and most estimable features in the character of the British physician.—He then details the curriculum for graduation; and in doing so omits one of the most important of the optional classes,—Medical Jurisprudence.—He insinuates that this curriculum will make but a batchelor of medicine, and not a doctor; to which we shall merely reply that, according to our frequent experience, the Edinburgh graduates are not inferior in point of practical skill to those of Germany or France.—He complains that the clinical lectures he heard were calculated only for learners, "and were therefore of no interest to him," forgetting that they are *intended* for learners, and not for him, and that consequently he was bestowing on them the highest possible praise.—The College of Physicians, he adds, is governed by the same rules as that of London. Heaven forbid!—

" The College of Surgeons has an insurance fund which, for a subscription of L. 5 a-year, yields L.25 annually to the widow of every member, and if he has none, L.100 annually to his children ?" Our author truly is a rare scheme calculator; unless, indeed, the children of the college are older than its widows. Even the widow's annuity, however, is incorrectly stated; it is more than double what he mentions.—Returning from this digression to the university, he remarks: " The treasures which were once drawn from this source are now exhausted; the celebrity of the Edinburgh school is on the wane; Edinburgh is no longer the place where British physicians learn wisdom." Here he is evidently under the influence of the discontented spirit formerly alluded to. If he had consulted proper authority, he would have found that the medical students of Edinburgh continue to increase in number every year; and that there is hardly a physician of eminence in Britain, who has not received, at the very least, a part of his education at our university. We know not what other facts can be taken for directing the judgment, when the malignity of party-spirit is prevailing, as it has done of late among us, and when the traveller, as in Dr Otto's case, cannot observe for himself.—The Phrenological Society, he says, now reckons among its members many distinguished men from all professions. We never heard of any such men among them: but the doctor is a phrenologist himself, and that is quite enough to distinguish the members in his eye.—He witnessed a strange dissection at the Infirmary of a case of tetanus, in which he says he saw inflammatory infiltration of the whole inner coat of the great arteries; and he adds, that a similar appearance was found not long before in a case of hydrophobia, " another proof of the analogy between the two diseases." We happened likewise to see the case in question; the doctor's inflammation was in the eyes of all men dyeing of the vessels with the fluid blood they contained.—He abuses the site of the fever hospital " as too confined, so that a fresh cooling wind, and an uncorrupted atmosphere cannot approach it." If he had lived as much in it as we have done, he would have found cause to change his mind. Every one who has attended to its position must be aware that it is in the gorge of a gradually contracting valley, one half of which, open towards the prevailing winds, is unoccupied with houses; and that in reality the site is one of the healthiest in the city.

We have said enough, we presume, to satisfy our Continental friends that they must not take Dr Otto's word on the subject of Edinburgh and its institutions. If we could accompany him on the remainder of his Scottish travels, we might point out many other instances of prejudice, carelessness, and ignorance. But really the odd jumble of accurate and false observation he has contrived to compound, is too irksome for us to wade through. This is inexcusable, when he affects such minute accuracy, as to inform us that the students meet at the tolling of a great bell, and that the professors' chairs are placed between two windows, and when he is constantly making the most scrupulous assurances of impartial regard to truth, and boasting at every turn, with undisguised vanity, that he fathoms to the bottom the object of his search. We may add, that we can likewise detect him frequently tripping on his way through other countries. But as we were, like him, only passengers through them, and the chief purpose of our review is served, we shall leave the trouble of correcting him to those who are more interested.

ART. VIII.—1. *Observations on the Treatment of certain severe forms of Hemorrhoidal Excrescence. Illustrated with cases.* By JOHN KIRBY, A. B. Member, and one of the Censors of the Royal College of Surgeons in Ireland, &c. &c. London, Printed for Longman, Hurst, Rees, Orme, and Brown, Paternoster Row ; and Hodges and M'Arthur, Dublin, 1817, 8vo. pp. 56.

2. *Additional Observations on the Treatment of certain severe forms of Hemorrhoidal Excrescence. Illustrated by cases ; with the History of a case in which an Enlarged Parotid Gland was successfully removed.* By JOHN KIRBY, A. B. Lately President of the Royal College of Surgeons in Ireland, one of the Surgeons of the Coombe Hospital, &c. &c. Dublin, Hodges and M'Arthur, 21, College Green, 1825. 8vo. pp.

IF we neglected to bestow on the first observations of Mr Kirby, that attention to which their merit entitled them, we trust we shall make amends by bringing them before the notice of the profession, at a time when the experience of more than eight years has furnished their author with the strongest and most irresistible proofs of their accuracy and utility.

Mr Kirby was induced long ago, after witnessing the bad effects of a ligature applied to hemorrhoidal tumours in one case, and a fatal termination in another, to adopt the practice recommended by Mr Hey of Leeds, in the treatment of *procidentia ani*, and to attempt their cure by excision. The aversion to the use of the knife betrayed by most patients in this disease, prevented him for some time from submitting his method to trial, and obtaining the decisive proofs of its security and its efficacy, which experience alone can afford. When this opportunity occurred, the results were highly favourable. Instead of the severe symptoms, both of constitutional disorder, and not unfrequently of intestinal irritation, with which the application of the ligature is too often succeeded, the wound early showed a tendency to heal, partly by adhesion, partly by granulation; the local uneasiness was trifling; and in the majority of cases a complete cure was obtained in the course of a few days, or at most at the end of two weeks.

We trust that, in the present day, when the practice of surgery is divested of most of those errors with which the ignorance and prejudice of the older surgeons had encumbered it, it is quite unnecessary to speak of the advantages which a clean incision with a cutting instrument possesses over the painful, tedious, and sometimes dangerous process by *tying off* hemorrhoidal tumours, as it was wont to be termed. If there are any who still entertain fears of the use of the knife, and who do not hesitate to avow their partiality for the ligature, we entreat them seriously to peruse the observations of Mr Kirby. If the cases and arguments adduced in the first publication of this surgeon failed to produce that conviction of the superiority of excision which the author wished, it will not be easy for the candid reader to resist the evidence adduced in the second.

The first of these two productions contains only five cases of hemorrhoidal excrescence treated by excision of the morbid parts. In the second, Mr Kirby details the principal circumstances of twenty-four cases of hemorrhoidal excrescence, of various duration, and in different degrees of severity. Most of these cases had been of considerable standing; several of them had been treated unsuccessfully by various general means and local applications; and all of them had given rise to much suffering, and considerable constitutional disorder. In every one of these cases Mr Kirby effected a speedy and permanent cure by cutting off the morbid growth and relaxed parts.

The mode of operation pursued by Mr Kirby is sufficiently simple. Having ascertained by careful examination the extent of the disease and the number of parts involved in it, he disposes his patient on a table in the same manner as in the operation for lithotomy. He returns every part which has been recently protruded, and passes a large curved needle, armed with a strong ligature, through the entire circle, of the pendulous projection. After these preliminary measures, requesting the patient to force gently downwards, he draws the parts firmly towards him, and removes the whole by one stroke of the scalpel. A gush of dark-coloured blood from divided veins always follows the incision, but ceases to flow almost immediately; and if any arteries discharge blood by jets, they are generally easily restrained by a compress of sponge, or two or three folds of charpée, covered by the T. bandage. On some rare occasions it may be requisite to secure arteries in the usual mode by ligature.

In the application of this operation to surgical practice, it appears from the observations of Mr Kirby, that three points are to be made the object of attention. It is first requisite to consider the security of the operation so far as hemorrhage is concerned. Secondly, it is proper to define the limits of the operation, and to prevent the division of parts which it is either unnecessary or inexpedient to divide. And, thirdly, it is the duty of the surgeon to conduct the after-treatment in such manner as to obviate excessive contraction of the parts, and prevent the patient from suffering from permanent stricture of the rectum.

To demonstrate the safety of this operation, and satisfy even the most timid practitioner that all fears of hemorrhage are groundless, Mr Kirby gives a very good account of the anatomical relations of the hemorrhoidal excrescence, derived from personal observation in the dissecting-room, and also from the examination of morbid growths removed by the knife. The general result is, to demonstrate the fallacy of the old opinion, that these tumours consist in varicose distension of the hemorrhoidal veins. Mr Kirby is satisfied, from the comparative examination of many cases of the disease, that not even in a single instance were the tumours formed of a varicose distension of these vessels; and he expresses his decided conviction, that no direct or large communication exists between the veins concerned in the operation, and the tributary trunks of the *vena Portarum*. "In every case of external hemorrhoids," he remarks, "the tumours appeared to be composed of a prolongation of the cellular substance, in a state of unusual firmness, surrounded by some veins, and covered by the integuments which form the folded margin of the anus. The veins were branches of the internal iliac. In every case of internal hemorrhoid the structure was pretty similar; the veins, however, seemed enlarged, and were branches of the hemorrhoidal."

In confirmation of the truth of these views, Mr Kirby adduces the authority of M. Larroque, of whose observations we had occasion to speak in our account of the treatise of Mr Calvert, (Vol. xxiv. p. 369,) when we considered the intimate structure of the hemorrhoidal excrescence at some length. The general conclusion is, that the genuine hemorrhoidal tumour is entirely different from the hemorrhoidal varix in structure, in mode of formation, subsequent course, and in their relative effects on the constitution. The reader will find, at page 114, an instructive confirmation of these inferences, in the account of a hemorrhoidal mass removed from the person of a man in the Coombe Hospital. Upon the whole, it may be justly concluded, that excision of the hemorrhoidal excrescence is free from all danger, so far as hemorrhage is concerned,—is much safer than the ligature, in causing incomparably less local and general irritation,—and is much more effectual in obtaining a permanent cure of the disease.

Next to the question of safety, it is important to determine the limits of the operation. Mr Kirby lays it down as a general rule, to confine his incision, or incisions, at first to such parts as are situate below the sphincter muscle. These he removes freely by a scooping motion of the knife, carried on one side through the integuments at the base of the hemorrhoidal mass, and on the other through, or a little above, the furrow which marks the union of the skin with the mucous membrane of the bowel. As this depression lies within the margin of the anus, it becomes necessary for the patient to force down somewhat to bring it freely into view. Immediately after the operation, it is withdrawn within the sphincter by the action of the *levator ani;* the entire wound is at the same time drawn within the bowel; and so forcible is the contraction of the sphincter, that the wounded surfaces are closely applied to each other, and the chance of hemorrhage is diminished to nothing. If the mucous membrane be divided much above the depression of the anus, part of the wound is liable to be drawn within the sphincter, and, consequently, to be less under the immediate influence of its action. Blood, therefore, may issue from the surface of such a wound; and as it will flow into the rectum only, the bleeding may go on for some time without the knowledge either of the patient or of his surgeon. Mr Kirby, therefore, warns the reader against this accident; but justly remarks, that it will not happen in the hands of any one who understands the principle of the operation, and the object which it is intended to accomplish. It may be added, that even hemorrhage from this source ought not to be source of inconvenience, as it may be always restrained by inserting a bit of sponge into the bowel, or plugging it by an elastic gum bougie, well surrounded with oiled charpée.

One of the first consequences of excision of the hemorrhoidal mass is retraction of the anus; and in all cases in which the external disease is accompanied, as it frequently is, with internal piles, and *prolapsus ani,* these unpleasant accompaniments generally disappear and never return. These effects Mr Hey of Leeds ascribes to the firm adhesion of parts which succeeds the operation, and to the increased action of the sphincter muscle. Mr Kirby, who doubts whether the proper action of this muscle can be increased, is more inclined to explain the effects by attributing them to the contracted callous circle which the wound forms at the margin of the *anus*, and which thus restrains the yielding disposition of the proper muscle. There is no doubt that as, previous to the operation, every hemorrhoidal tumour is attended with excessive and morbid relaxation of the skin and of the parts round the anus in general, so the effect of excision is to produce adhesion by effusion of lymph and the process of granulation. Hence ensues so much contraction and consolidation, that the sphincter no longer moves so easily on the loose cellular substance as before, and, receiving considerable support from the healed parts, acts with more force and precision, in sustaining the bowel and preventing protrusion.

Even this tendency to contraction may proceed to an injurious extreme; and Mr Kirby justly cautions the practitioner against its bad effects. It is therefore particularly necessary, and almost the principal point which is necessary, to conduct the after-treatment so as to moderate and regulate the contraction which attends the adhesive and granulating process. Whenever the sensations of the patient or the appearances of the parts are such as to indicate morbid contraction of the anus, a ready resource will be found in the employment of the tent or the bougie. This excessive contraction, according to our experience, is most liable to take place when the fibres of the sphincter have been partially removed during the operation.

Upon the whole, the cases and observations of Mr Kirby are particularly worthy of the attentive perusal of the surgical practitioner. The department of surgery which the author has had occasion to treat, gives scope neither for brilliant nor attractive observations; but in real utility we are convinced it yields to none. His merit is therefore the greater in applying to a subject both obscure and neglected the sound principles of surgical science, and in requesting for it that attention which is too often exclusively devoted to the splendid and imposing parts of the art.

The second publication is concluded with the *history of a case in which the parotid gland was successfully removed.* The case is in many respects highly interesting, and will afford much gratification to all who are interested in the advancement and perfection of operative surgery. The disease, consisting of a painful tumour as large as a goose-egg, occurred in the person of a slender and rather broken down woman of forty years of age. It was immoveably fixed, and generally painful when handled. Its surface was irregular, and the integuments were of a deep livid hue over the largest prominences. One part was obscurely elastic, and conveyed the sensation of fluid situated at some depth from the finger. In every other part it was exceedingly firm.

The description of the operation, though minute, is on the whole clear; and, so far as it is possible to form a judgment from mere description, the gland was entirely and perfectly removed.

> "The space between the pterygoid muscles," says Mr Kirby, "was void; the auditory tube was fully exposed; the articular capsule of the jaw was brought into view, the finger could trace the length of the styloid process; and on sponging the wound of its blood, it could be seen by those who surrounded the chair. Nearly with as much plainness as in the dead subject, we saw the origin of the muscles attached to this part of the temporal bone, and on giving the patient a drink we could distinguish them in action." p. 133.

It was found unnecessary to apply a ligature to the temporal artery; and the hemorrhage was restrained by sponge compresses introduced into the inferior part of the wound, and by bringing its superior end in contact, and securing it by compresses of charpée and a double-headed roller.

On the third day the superficial dressings were removed. On the seventh day, the sponges were protruding above the margins of the wound, surrounded by granulations; and the zygomatic angle of the incision was completely healed. In the course of a few days more the two upper pieces of sponge were removed; and some time after those at the bottom were also extracted. After this the parts closed rapidly; and though some exuberant granulations, which obstinately resisted even the use of the caustic, seemed to threaten the production of a malignant fungus, upon the patient's removal to the country, cicatrization was finally effected. As Mr Kirby has received no information from her former medical attendant since January 1823, he naturally infers that no relapse has taken place.

The author concludes with observations on the practicability of removing the parotid gland, which has been denied by surgeons of the greatest eminence. To the authority of other cases Mr Kirby adds the testimony of Sir Astley Cooper, who informed him that he had lately removed the parotid gland twice within the space of twelve months. Notwithstanding the difficulty of extirpating this gland in a healthy subject, Mr Kirby found that, when diseased, its boundaries are so well defined and the capsule of cellular substance by which it is connected to the contiguous parts is so easily traced, that it may be turned out from its situation without risking any of the evils which the anatomist in general anticipates as the consequences of this operation. In whatever light the operation is to be viewed on general principles, there can be no doubt that Mr Kirby has considerable merit in explaining the circumstances which render it practicable, and in showing by example that it may be carried into effect.

Art. IX.—*Osservazioni Chirurgiche, &c. Surgical Observations.* By Louis Cittadini, Lecturer on Anatomy and Surgery at the Royal Hospital of Arezzo. *On the Resection of the Ribs. Annali Universali di Medicina. Marzo* 1826.

Among the novel and apparently formidable operations, which have lately been sanctioned by modern surgery, few have excited so much interest at the time they were proposed, and received so little attention afterwards, as that for excision of diseased portions of the ribs, believed to have been first practised by Professor Richerand of Paris, in the year 1818.* The circumstances under which the operation was performed in his noted case, were such as tended to create the belief that the operation is in itself attended with very great danger,—with the most formidable, indeed, of all dangers, the death of the patient under the knife of the operator. This appears to have been the reason why his success has encouraged few to imitate his example; for we conceive that many cases must occur in which a similar method of cure would be advisable, and indeed have lately heard of a patient having died, whose life would probably have been saved by the excision of a portion of a rib.

Such being the state of matters, we think the paper of Cittadini one of great importance to the profession. On the one hand, it shows that the removal of a portion of one or more ribs, even when the pleura is at the same time wounded, is not attended with such urgent danger as a perusal of Richerand's case would lead one to imagine. And on the other, it establishes a claim on the part of the author to originality and to priority in the performance of this operation. The first of Cittadini's cases was published in 1820, in the French *Journal Complémentaire*, and was read before the *Academia del Petrarca d'Arezzo*, in January 1813. The four other cases have been published very lately in the Milan Annals of Medicine.

1. The case related in the *Journal Complémentaire*, is that of a woman who was affected with fistulous ulcers under the left mamma, the consequence of a neglected abscess. The sinuses had been repeatedly laid open, and treated by caustic ap-

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* See this Journal, xiv. 647.

plications without any improvement. When this patient came under the care of Cittadini, he found by probing the sinuses, that a part of the sternum and the cartilages of the sixth and seventh ribs were denuded. He therefore made an incision round the affected part, and dissected back the integuments for the purpose of ascertaining the extent of the disease, and treating it in the first instance with the actual cautery. The sternum proved to be carious over an extent of two finger-breadths, and the two cartilages were swelled and perforated at various points for about three inches of their length. The actual cautery having appeared to him the most feasible plan of cure, it was applied on several places, with the view of producing exfoliation. The issue, however, was unsuccessful. The woman had an attack of inflammation of the pleura, caused by the proximity of that membrane to the seat of the cauterizations; a few fragments of bone were exfoliated afterwards; but the fistulous openings remained, and the wound did not cicatrize. In the course of six months the matter had evidently found its way into the cavity of the chest; and in consequence the patient was affected with continual pain, difficult breathing, and excessive emaciation. Cittadini then determined to attempt saving her life by removing the whole of the diseased bone and cartilages. Having removed the whole irregular cicatrix and laid bare the bone, he found a free opening into the chest between the sixth and seventh ribs. He then divided the intercostal muscles, secured both intercostal arteries by means of a curved blunt-pointed needle, armed with ligatures, and cut the two diseased ribs on the sternal side of the ligatures. He next applied the crown of a large trephine to the diseased part of the sternum, and finally detached the whole from the pleura by means of a spatula. The subjacent pleura, although unhealthy, was allowed to remain, as he considered it unsafe to attempt its removal on account of the proximity of the internal mammary artery. The operation was tedious, and the introduction of air into the cavity of the chest threatened immediate suffocation. The wound was therefore hastily covered up with pledgets of cerate, and secured with an elastic bandage; and stimulants, friction and artificial respiration were successfully resorted to for rousing the expiring energies of nature. During two months, and till the cicatrization was completed, she continued to suffer from difficult breathing; but after that she recovered rapidly, and she was in the end restored to perfect health.

II. A farm-servant had been for some time affected with a fungoid tumour, situated over the cartilages of the sixth, seventh, and eighth ribs, and about an inch distant from the ensiform cartilage. It had been repeatedly extirpated by caustics and with the knife, but constantly returned. As it appeared evident to our author, that the ordinary methods of treatment would be fruitless, and as the morbid growth was distinctly incorporated with the cartilages, he proposed the excision of the whole portions of the ribs from which it sprung. An incision being accordingly made round the tumour, a portion of the integuments was removed of the diameter of three inches, some fibres of the rectus and great oblique muscles were next separated, and the whole cartilaginous part of the three abovementioned ribs laid bare. The area of the disease was then found not to exceed two inches. An incision was now made with a strong blunt-pointed knife round the base of the tumour, and the knife was turned round and round till the cartilages were divided. The diseased portion was then raised by a strong spatula, and was found to separate from a fungoid mass below, the laceration of which gave rise to great hemorrhage. The hemorrhage was checked by the actual cautery, the cicatrization, though slow, was completed in four months, no unpleasant symptom appeared during that period, and the fungus did not return during the remainder of the patient's life.

III. A young man of lively imagination, sanguine temperament, and strong constitution, was taken ill with *ataxic* fever, and in the height of delirium got possession of a stilette, and tried to stab himself to the heart with it. The instrument struck the lower edge of the left nipple, traversed the left rectus muscle, and grazing the upper edge of the cartilage of the sixth rib, fixed itself finally in the bony substance of that rib. A great deal of blood was lost in consequence. Although the fever was speedily removed, the wound suppurated; and two months afterwards it healed, with a fistulous opening, which led to the injured rib. Incisions and cauterizations were then tried, but without effect. Eleven months after the wound was received, the patient came under the charge of Cittadini, who found the whole cartilage and part of the bone of the sixth rib denuded and rough. He therefore resolved on removing the diseased portion of the rib. On dissecting back the integuments, he found this portion was an inch and a half long. He divided the cartilaginous part with a blunt-pointed knife, and the bony part with a pair of oblique cutting pincers; next tied the chief bleeding arteries, and compressed the smaller branches; and then separated the diseased part of the rib in the usual manner. The pleura having been perforated in various places during the operation, the breathing became for the moment short and laborious. In a few hours, however, it became easy again; the wound healed in two months; and the man enjoyed ever afterwards the most perfect health, and never had any unpleasant feeling in the region of the wound.

IV. A robust athletic man, fifty years of age, was attacked with pleurisy of the right side, which, although it commenced with violence, was speedily checked by the proper remedies. During the progress of convalescence, he felt under the right nipple a firm tumour, painful on pressure, and situate over the cartilage of the sixth rib, near its union with the sternum. This tumour advanced slowly to suppuration, and in two months opened externally, forming a small fistulous sinus, which remained stationary for a year and a half, in spite of frequent attempts to heal it by incisions. Its termination was evidently in a carious portion of the cartilage above-mentioned. Cittadini, as soon as he determined the nature of the case, proceeded to remove the disease by excision of the cartilage. The integuments having been removed in the usual way, he found he could not divide the cartilages conveniently with the ordinary knife, as they were unusually deep-seated, and sunk as it were in adipose substance and the muscular tissue of the *pectoralis major*. He therefore used the lenticular knife employed in trepanning, inserting it under the edge first of the seventh rib, and then of the sixth, and cutting round each till it was divided. The subjacent pleura, which had been much thickened, was cut in several places. A considerable quantity of blood flowed from the lacerated branches of the intercostals; but the hemorrhage was easily arrested by compresses and a tight bandage. No notice is taken of difficulty of breathing having been produced by the openings in the pleura. The cure lasted six months, and was complete.

V. A young woman had, for several months, on the left side of the chest, a fistulous sinus, leading to the third rib, which was denuded. The chief disease was on the upper surface, near the union of the bone with the cartilage, where the patient had formerly received a severe contusion. All the usual remedies had been tried without avail. Cittadini removed the diseased portion in the same manner as in the last case, but left the lower side of the cartilage, as it was not diseased. The cure lasted two months, and was permanent.

We cannot conclude the foregoing narrative better than in the writer's own words. "It follows," says he, "from the observations related above, that *resection of the ribs* is not one of the very dangerous operations, as surgeons have hitherto believed; and that hemorrhage of the intercostal arteries may be checked simply by compression, without having recourse to the ligature, provided they are cut near the sternum, where they are small in diameter. There is scarcely a single surgeon who has not witnessed the fatal consequences of caries of the ribs. After profuse suppuration, enduring for months or years, emaciation, marasmus, and death ensue. It is useful to know, therefore, that the diseased parts, which constitute the origin of the fistulous sinuses, may be removed by the knife without material risk."

ART. X.—1. *On Melanosis*. By WILLIAM CULLEN, Esq. Member of the Royal College of Surgeons, Edinburgh, and ROBERT CARSEWELL, Esq. (Read 7th May 1823.) Transactions of the Medico-Chirurgical Society of Edinburgh. Edinburgh, 1824, Vol. I. p. 264.

2. *A case of Melanosis, with general observations on the pathology of this interesting disease.* By THOMAS FAWDINGTON, Member of the Royal College of Surgeons, London, and one of the Surgeons to the Manchester Lying-in-Hospital; illustrated by coloured Lithographic Plates. London, Printed for Longman, Rees, Orme, Brown, and Green; and Robinson and Bent, Manchester, 1826.

THE morbid change to which the French pathologists first applied the denomination of *Melanosis*, or black degeneration, begins now not only to attract greater attention, but to be more frequently observed than before in this country. The clearest and the fullest account of it hitherto given to the British public, is that in the first volume of the Transactions of the Medico-Chirurgical Society of Edinburgh, by Dr Cullen and Mr Carsewell. The cases related by these gentlemen are well-marked examples of the disease, and show to what extent its deposition had proceeded, in affecting the textures and organs of the animal body. We regret to observe that the essay of Mr Fawdington betrays no marks of acquaintance with this valuable communication; and this circumstance, with others which may appear in the sequel of our observations, will doubtless form a sufficient reason for bringing it more directly under the attention of our readers, than it was possible to do, when we announced the publication of the volume in which it originally appeared.

The essay of Dr Cullen and Mr Carsewell contains three examples of melanosis in the human subject, and one instance of its occurrence in the horse. It is chiefly to the circumstances of the former that we shall at present direct the attention of our readers, in connection with the case of Mr Fawdington.

The first case in the Edinburgh account is that which the authors had an opportunity of observing in the body of a woman at the pavilions of the School of Medicine at Paris. In the right groin there was an ulcerated surface as large as a crown-piece, of the colour of China ink, and as consistent as cream above, but firmer below, where it adhered to the cellular tissue. Its edges were pale and irregular, but without eversion or thickening, nor was it attended with fetor. In the neighbourhood a number of small, hard, round tumours beneath the skin, gave it the peculiar colour of melanosis. One or two bodies of the same kind were also situate in the *labia* and *nymphæ*. Further dissection showed a chain of melanose bodies, extending from the groin towards the diaphragm in the course of the iliac vessels. They varied in size from that of an orange seed to that of a walnut; their shape was globular or spheroid; and all were composed of a firm cyst, containing black-coloured matter of various degrees of consistence. The peritoneum was unaltered; the cellular and muscular tissues were sound; and no appearances of vascularity, either arterial or venous, could be recognized.

The second case described in the essay of Dr Cullen and Mr Carsewell, occurred in the person of a man aged fifty-one, under the care of Dr Home, in the clinical ward of the Royal Infirmary. In the spring of 1822, this man was first affected with a painful disease of the right eye, for the removal of which extirpation was performed. In March of the following year he was admitted into the hospital with severe pleuritic symptoms, for which the usual antiphlogistic measures were employed with good effect. In the course of convalescence he was attacked with hemorrhoidal disorder, which yielded to the application of leeches. On the first of April he complained of weakness only, for which nutritious diet, with white wine, was ordered; but he died during the night.

The first incision exposed a number of black globular bodies, imbedded in the cellular tissue, between the pectoral muscle and the third and fourth ribs of the left side, about the size of peas, and some of them adhering to the periosteum. Similar bodies were afterwards found in the subcutaneous cellular tissue of the chest and belly, and among the fibres of the intercostal muscles. The substance of the rib itself, and of the sternal third of the collar-bone, was completely black; but these bones were natural in other respects. The pleura was studded with similar bodies, partly insulated, but in general aggregated so as to resemble clusters of purple grapes. Many were hardly raised above the membrane; others had long slender necks like pedunculated polypi. Most of them were jet black, some were deep purple, or reddish, and others contained portions of white-coloured matter blended with the black. The lungs were extensively occupied with these tumours; and several small ones were found under the mucous membrane of the bronchia. Melanose bodies also were found in the pericardium, and in the substance of the heart, in the liver, spleen, kidneys, peritoneum, and omentum.

In the eye-ball, the situation of the vitreous humour was occupied by a black fibrous mass, pushing the choroid coat and retina into the posterior chamber; and substance of the same kind was lodged behind the globe, and apparently in the adipose tissue surrounding the optic nerve, which, with the muscles, had undergone no alteration.

A third case occurred in the person of a woman aged forty-two, under the clinical care of Dr Alison. She was admitted on the 3d June 1823, for severe pains of the right shoulder and arms, of the loins, belly, and inferior extremities; for which she was treated with leeches, fomentations, and anodynes, more especially Dover's powder. Pills of calomel and opium, and afterwards mercurial pills, were administered for a tympanitic state of the belly; but no marked relief resulted. Several small painful tumours, which were found on her belly on the 21st, she declared had existed since the commencement of her illness. About the first of July, hectic symptoms became evident; and on the evening of the 7th, after vomiting dark-coloured matter, she expired.

The body was much emaciated. Several small dark-coloured bodies, containing black pulpy matter, were found imbedded in the cellular substance over the whole person; but they were largest and most numerous in the mammae. The inner table of the scull was darker than natural; and in some places the black matter was deposited in irregular patches, with corresponding stains on the *dura mater;* great part of the parietal and occipital bones also were black, and more brittle than natural, but otherwise unchanged. The substance of the brain was healthy; but minute dark-coloured striæ were observed in the course of the ramifications of the small vessels in the membranous coverings of the base of the brain. Within the thorax, a number of small dark tubercles, similar to those in the subcutaneous cellular tissue, were situate on the surface of the costal pleura, and others of larger size were attached to the surface of the lungs. Minute black tubercles were imbedded in the substance of the lungs, and black spots were observed beneath the pericardial coverings of the heart. The muscular peritoneum was stained with black streaks and spots on its inner surface. To the omentum were appended several black globular tumours, which, when divided, discharged a dark-coloured fluid. Numerous black spots and small tumours were found between the folds of the mesentery, and in the cellular tissue, beneath the intestinal peritoneum. The ovaries were so much larger than natural, as not only to occupy the internal iliac regions, but to protrude before the uterus. Their external surface was dark, shining, and lobulated; their substance, exposed by incision, uniformly black, and presenting several distinct cavities, containing a dark-coloured fluid. Masses of the same colour were also found in the cellular substance, connected with the kidneys, liver, spleen, and mucous coat of the intestines, though these organs are said themselves to have been exempt from the deposite.

The necrological appearances detailed in these cases are sufficiently distinct to communicate a correct idea not only of the general characters of the melanotic deposition, but of the great extent of the human body over which it may be diffused. The instance published by Mr Fawdington, adds another extremely valuable contribution to the history of Melanosis, and merits in every respect the particular attention of the observer of organic changes, and morbid deposition.

The disease occurred in the person of a man of thirty, employed as a carder in a cotton manufactory in Staffordshire. In the month of January 1824, this man, who then had the appearance of robust health, first applied to Mr Wilson, senior surgeon to the Manchester Eye Infirmary, in consequence of a violent and incessant pain of the left eye-ball. Six months before, he had received a blow on the organ, from the projection of a small piece of iron; but the injury was supposed to be trifling, as he experienced little pain, and the eye presented no conspicuous external appearance. About a fortnight after the accident, he first complained of a sensation of fulness in the globe; and upon shutting the right eye, discovered that the sight of the left was impaired. At the date of his application, the vessels of the conjunctiva were large, tortuous, and fasciculated; the sclerotic coat was red, and undergoing absorption; the iris was dilated and immoveable; and a slate-coloured opacity occupied the centre of the pupil. Under the use of evacuations, and the antiphlogistic regimen, the pain was removed, but the sight was not ameliorated; and at the end of a month he returned into Staffordshire.

About the end of March, the pain, which had soon returned, was so severe and incessant as to prevent him from sleeping, and he once more applied to Mr Wilson. The opaque appearance in the pupil had now assumed a dirty red colour, resembling newly organized lymph; and this seemed to be the apex of a conical body issuing from the bottom of the eye. The former treatment, with moderate ptyalism, was first attempted without avail, and on the 19th of April Mr Wilson removed the contents of the orbit. A section of the extirpated eye-ball discovered a black pulpy mass occupying more than half of the globe, in the situation of the vitreous humour, of which no trace could be seen. Two cavities filled with brownish-red fluid were situate, one at the side of the tumour, the other before it, and behind the lens. The choroid coat was entire, but the sclerotic was much attenuated, and as if split or fissured. The interposition of the morbid mass had detached the retina from the choroid, and folded it across the globe, so as to form a partition between the new deposition and the larger of the two cavities. The lens was opaque and yellow; the capsule thickened, but partially transparent; the ciliary ligament distinct, the processes partially left; and the optic nerve at the point of division appeared to be sound. The patient recovered from the effects of the operation, and returned home at the end of a month in apparent health.

In August he again applied to Mr Wilson on account of three or four tumours on the face about the size of a leaden shot, perfectly black, but unattended with pain or uneasiness. He complained however of difficult breathing, stitches in the side, and short cough; his pulse was quick and sharp, and his flesh was much wasted. A tumour similar to those on the face was discovered on the skin of the back between the scapulæ; and in a few days one or two were found on the scalp. He was blooded from the arm and sent to the Manchester Infirmary, where he remained for a fortnight, and by his own request became an out-patient.

His strength had been for some time declining rapidly, when about the beginning (2d) of October he fell under the care of Mr Fawdington. He was then pale and much wasted, and had œdema of the legs. The belly was large and prominent, with a tumour or growth reaching from the right to the left side, and downwards to within an inch and half of the pubes, where its margin could be distinctly traced. The surface was firm, irregular, and tuberculated, the tops of the eminences slightly elastic; pressure caused little uneasiness, but he complained of transient pains in the chest and belly. A few weeks before, he had experienced an acute pain darting from the left hypochondre to the shoulder; but it subsided spontaneously in two or three days. His breathing was little embarrassed; the cough so trifling as scarcely to claim notice; and the expectoration was nearly unchanged mucus; but the respiration was said to be freer when slightly inclined forward, than either in the erect or in the horizontal position. The principal distress, in short, appeared at this time to arise from the bulk and mechanical pressure of the tumour causing an uneasy sense of weight and distension. The appetite was in general little impaired; and though the patient was distressed with diarrhœa, the discharges were neither ill-digested nor destitute of the usual biliary appearance. The state of the urine was remarkable. It was not only scanty, but when voided it had uniformly a Modena red or purple colour, and after standing some hours it separated into a fluid of a deep amber tinge and a chocolate-coloured precipitate. It underwent no visible change either on the application of heat or by the addition of nitric acid. The pulse was somewhat more frequent than usual, the tongue was morbidly red, and there was some thirst. Transitory febrile paroxysms were observed to return at indefinite periods without obvious cause, and to terminate in sweating.

The face and scalp at this time presented several well-marked melanose tubercles; and one in the lower lid of the extirpated eye appeared to be on the verge of perforating the skin; but no melanose matter could be seen in the bottom of the orbit. The skin in other regions had hitherto escaped; but the subcutaneous cellular tissue over the chest and belly was more or less loaded with melanose deposition, which, in situations near the surface, gave rise to faint blue elevations of various size and distinctness.

For arresting the progress of such a malady nothing could be done with the hope even of success. The diarrhœa had been checked by suitable remedies, the alvine discharges were in a healthy state, and the urine became more copious without losing its other qualities. The flesh and strength however declined rapidly but gradually; the pulse was constantly above 100; the febrile sweatings became uniform and colliquative; the cough became very troublesome, and the breathing was difficult in the recumbent position. This state of symptoms continued till the second of November, in the evening of which the patient suddenly started from bed with a feeling of suffocation. After gasping and breathing for some time with great difficulty, he perspired profusely and fell into a state approaching to syncope. The surface and extremities became cold; great restlessness with jactitation and delirium came on; and death took place about three hours after the first appearance of the urgent symptoms.

Dissection showed the great and extensive diffusion of the deposite. The cellular texture of the chest and belly was impregnated at intervals with grains of melanose matter of various sizes up to that of peas, and inclosed in delicate transparent cysts. The liver was much altered in shape, and augmented to at least four times its usual size, so as to extend laterally and conceal the other viscera, except in the hypogastric region, where a few turns of ileum covered by omentum were seen. Part of its surface was undulated, part extremely uneven, with dark blue circumscribed eminences, the largest of which measured four or five inches over the summit. On the anterior surface of the organ corresponding to the navel, where during life there had been an elastic pointing tumour communicating the sense of fluctuation, was found a large tumour projecting above the others. A section through one of the largest of these bodies discharged several ounces of homogeneous dark-coloured fluid, resembling deep chocolate paint in colour and consistence. In general, this matter was most fluid in the centre of the cysts, and more consistent near their circumference. The intermediate spaces showed little of the natural hepatic texture, their colour being faint reddish-brown speckled with black, most probably the same sort of matter deposited diffusely. The whole organ was tender and very lacerable, especially where the disorganization from new deposition was most complete. The gall-bladder was very much impregnated with the deposition.

The muscular division of the peritoneum was marked in the form of minute black dots; but the intestinal division was comparatively free from melanotic deposition, though the subserous cellular tissue was universally pervaded. It is also worthy of remark, that the adipose cellular tissue which is situate between the layers of the mesentery, mesocolon, and omentum, that which covers the sides of the vertebral column, and that which extends from the concave surface of the diaphragm, and envelopes the kidneys and their vessels, contained an abundant deposition of black matter, distributed in various forms, but principally globular and ovoidal. The pancreas, spleen, and kidneys, were thickly studded with melanotic bodies of various size and shape.

In the chest, a considerable number of melanose tubercles was found in the cellular texture of the anterior mediastinum; they were very abundant in that on the outer surface of the costal pleura, and in that beneath the pulmonic pleura, where they assumed the form of flattened spheroids or ovoids, attached by a slender stalk or pedicle to the subjacent membrane. Melanose spots were in like manner found in the cellular tissue which connects the cardiac pericardium to the heart, and more sparingly in that which connects the muscular fibres of the organ.

The membrane lining the auricle and ventricles was sound; the large vessels both in the chest and belly were unaffected; and no traces of melanosis could be seen in the nerves. The brain unhappily was not permitted to be examined. The windpipe and the pulmonary mucous membrane presented no traces of disease; the state of the gastro-enteric mucous membrane is not mentioned.

This case, which bears in several particulars a close resemblance to that of Houston, the second of Dr Cullen and Mr Carsewell, we have detailed thus fully for the purpose of drawing the attention of our readers to certain general points, regarding the anatomical distribution and textural preference of the melanose deposition. It is a curious general fact in the anatomical history of melanotic deposition, that some parts are much more readily affected than others, and that some textures are abundantly loaded with the melanotic deposite, while others remain entirely free. If the cause of this difference is either unascertained, or beyond the reach of our present researches, some illustration may be thrown on its nature, by endeavouring to point out the circumstances attending its formation in one kind of organic texture more than another.

In the *first* place, it is particularly deserving attention, that the cellular tissue, and its modification the adipose membrane, are both most abundantly and most generally the seat of the melanotic deposition. Thus, in the case of Mr Fawdington, not only the subcutaneous cellular tissue of the chest and belly was granulated with melanose matter, but the whole of that adipose membrane which lies on each side of the vertebral column, and forms a cushion for the vessels, nerves, and other important organs; the whole of that which envelopes the kidneys, and descends on each side of the loins; that between the folds of the mesentery, mesocolon, and omentum, and the cellular membrane of the anterior mediastinum, were more or less extensively and abundantly loaded with melanotic deposition in various forms, and of different sizes. That a similar distribution is observed in other cases of the disease, is manifest from those in the excellent paper of Dr Cullen and Mr Carsewell. Thus, in the body of the woman examined in the pavilions of the School of Medicine of Paris, "a distinct chain of melanose bodies" extended "from the groin up towards the diaphragm, in the course of the iliac vessels." In Houston also, the patient of Dr Home, black globular bodies were found, not only in the cellular tissue, between the pectoral muscle, and third and fourth ribs of the left side, but "in the subcutaneous cellular tissue of the thorax and abdomen, so as to be discernible through the integuments; and, though the cellular substance of the mediastinum, of the vertebral column, and of the mesenteric duplicatures, is not mentioned, it is probable that they also were affected. In the third case, also, that communicated by Dr Alison, this evidence was unequivocally obtained. Not only were dark-coloured tumours, containing soft, pulpy, black matter, distributed over the whole body, and imbedded in cellular tissue; but numerous black spots and small tumours were found between the mesenteric folds, black globular tumours were appended to the omentum, and black matter was deposited in the cellular tissue connected with the kidneys, liver, spleen, and the mucous coat of the intestines.

The same results regarding the infiltration of the cellular and adipose membranes, are evinced from the facts detailed in the dissection of the horse, as described in the joint essay of Dr Cullen and Mr Carsewell. The melanotic tumours were first recognised in the abundant celluloso-adipose membrane, round the rectum and anus, and on the buttock; and, internally, the cellular substance, from the termination of the aorta, down the lumbar region of the left side, into the pelvis, presented an immense chain of melanotic tumours, coalescing with those observed in the vicinity of the anus, where some of them are said to have been as large as a child's head.

Secondly, The delicate cellular tissue which connects the serous membrane to the contiguous parts, and to the inclosed organs, presents this melanotic deposite nearly to the same, if not to a greater degree, than the common cellular membrane. This was already sufficiently noticed in the case of Mr Fawdington. In the case of Dr Home's patient, Houston, though the pleura is said to have been studded with melanose tubercles, no mention is made of the side on which they were situate; but as the lungs are described as extensively occupied with melanotic masses, there is reason to infer, that this is meant of the cellular tissue beneath the pleura, and connecting that membrane to the pulmonic lobules. In like manner, when, in the same case, the substance of the heart is said to be affected —when, in the case of Rachael Bruce, spots are said to be noticed beneath the pericardiac coverings of the heart—and when, in the case of Mr Fawdington, the surface of the heart is described as covered with melanose spots, chiefly subjacent to the pericardium, little doubt can be entertained that the tissue of melanotic infiltration is the subserous and intermuscular structure. Infiltration of the abdominal subserous cellular tissue is particularly remarked in the case of Rachael Bruce (Cullen and Carsewell,) and in the case described by Mr Fawdington. Next to the cellular, or adipose tissue, several of the internal organs, termed parenchymatous, for want of a better denomination, are most frequently the seat of melanotic deposition. Thus, not only the lungs, but the liver, the spleen, and the kidneys, are said, in Houston, to have been occupied with melanose masses. In Mr Fawdington's case, the liver, we have seen, was extensively and extremely affected, and the pancreas, spleen, and kidneys were thickly studded; whereas, in Rachael Bruce, (Dr Alison's case, *apud* Cullen and Carsewell,) though the substance of both mammae, and of both ovaries, were completely melanosed, the liver, spleen, and kidneys are said to have been exempt. If more extended observation shall show that the affection of these parenchymatous organsis general, it may not be irrational to infer, that it is chiefly in consequence of the large proportion of cellular tissue which enters into their composition.

Lastly, It is observed, in the cases of Houston and Rachael Bruce, that certain parts of the osseous system had participated in the melanotic infiltration. In the former, one of the ribs and part of the clavicle were melanosed. In the latter, part of the inner table of the scull was darker than natural, and the surface of the bone was stained with patches of black matter. Great part of the parietal and occipital bones were black, less consistent, and more brittle than natural; and similar changes were observed in the sternum, and the sternal ends of the ribs.

We have now enumerated the textures most ordinarily affected with melanotic infiltration, in the order of the frequency and abundance in which that process takes place. It remains to be mentioned, that some textures are either wholly exempt from it, or are liable to become melanosed in a slight degree only. Thus the nerves, the proper arterial tissue, and muscular fibre, appear to be almost never the seat of melanotic deposite; and it is extremely doubtful if the serous membranes, the mucous membranes, or the skin, ever become penetrated with this substance.

With regard to the two first mentioned textures, the dissections of Dr Cullen and Mr Carsewell, and especially that of Mr Fawdington, seem to be quite unanimous. The immunity of muscular fibre may appear more questionable, if it be not remembered, that, in the instances to which the substance of muscles is said to be infiltrated with the melanose matter, it is not the muscular fibre itself, but the connecting and intermuscular cellular tissue which is really and truly the seat of deposition.

To some the immunity of the serous membrane from this disease may appear doubtful. But in most of the cases it is expressly stated, that the peritoneum was unaffected, though its subjacent cellular tissue was not; and there is no very clear proof that either the proper pleura or the pericardium was intrinsically and primarily melanosed. This however may be viewed as a point for future investigation.

The mucous membranes were manifestly unaffected in the case of Mr Fawdington. In the case of Dr Cullen and Mr Carsewell, the state of these membranes is not remarked, though melanotic tumours are noticed in the submucous tissue of the bronchial membrane in the case of Houston. One example of its occurrence in the mucous membrane of the stomach observed by Lerminier and Andral at the Hospital of la Charité, we noticed in a former number, (Vol. xxvi. p. 214.) The substance of the skin seems never to be primarily affected.

The state of the brain has been hitherto too rarely examined to be made the subject of positive conclusions; but so far as is hitherto known, it is very rarely if ever tinged with melanotic matter.

The facts of these cases, if confirmed by subsequent observations, would lead to the conclusion,—that the melanotic deposition has a remarkable preference for the cellular and adipose membranes throughout the system. This indicates a conspicuous difference between it and the hematoid fungus, with which perhaps it has been occasionally confounded. While the former has never yet been known to attack the matter either of the brain or of the nervous trunks, the latter almost invariably affects these textures, whatever other ones it may involve. Thus, in the case of Dr Home, (Cullen and Carsewell,) in that of Mr Fawdington, where the disease appeared first in the eye-ball, and in that of the dancing master published by M. Chomel, in the third volume of the new *Journal de Medicine*, (p. 41), it was the adipose cushion surrounding the globe in which the melanotic matter was deposited; and the optic nerve was in each case in a state of integrity. It is the same principle that is recognized in the fact mentioned by M. Breschet, that the blood-vessels are frequently surrounded and concealed in the midst of melanose tumours, which seem then to occupy the place of the cellular and adipose sheath in which the blood-vessels are invariably imbedded.

We are indebted to Mr Fawdington for some interesting observations on the physical and chemical properties of the melanotic matter. He describes it as similar to the contents of the decayed Lycoperdon *(Lycoperdon bovista,)* or common puff-ball, if moistened and rendered adhesive by a small proportion of liquid. Its colour was deep red-brown or chocolate; its texture slightly fibrous; its tenacity equal with that of the brain; and if agitated with water or spirits, the former received a deep tinge, the latter was scarcely coloured, and a pulverulent sediment, of the colour and opacity described, was precipitated. This indicates a partial solubility in water, and a very sparing solubility in alcohol. M. Barruel, who analyzed this melanotic substance, regards it as a deposition of the colouring matter of the blood, and of fibrine, under such modification as to form three different sorts of fatty substance. The first of these is insoluble in alcohol at a moderate temperature, and disposed to crystallize in brilliant scales; the second was soluble in alcohol at a boiling heat only; and the third was a reddish-coloured fatty substance, fluid at the ordinary temperature of the air, and which is said to contain a large portion of the phosphate of lime and iron.

These views are, in some degree, modified by Dr Henry of Manchester. The black softened matter, after being kept sometime in spirit, was subjected to analysis by this able chemist, with the following results:—

" 1st, By filtering through paper, much of the colouring matter remained on the paper, and the colour of what passed through was much less intense.

" 2d, Boiling does not destroy the colour, nor even when a little caustic potash has been added.

" 3d, It is not changed by acids even when heated, except by nitric acid, which deprives it of its black colour, and turns it yellow.

" 4th, A stream of chlorine passed through the liquid destroys the black colour, and throws down light fawn-coloured flocculi.

" 5th, A few grains of corrosive sublimate stirred up with the fluid, precipitates the whole of the colouring matter, and leaves the supernatant liquid quite clear.

6th and 7th, Nitrate of mercury, and muriate of tin, produce the same effect, but more slowly.

" From these experiments it appears that the black matter is a peculiar secretion, analogous in some properties, especially in the 5th, 6th, and 7th, to the colouring matter of the blood. It would be necessary, however, to repeat and extend the experiments on a larger quantity of the fluid, and in a more recent state, before any just conclusion can be deduced respecting its nature."

The melanose matter seems to be entirely destitute of organization. It is never attended either with vascularity or any other marks of this property; and M. Breschet, who injected the neighbouring arteries and veins with the most delicate and penetrating materials, could never trace the vessels farther than the cyst or enveloping membrane. It is also a peculiar feature in this substance, that the animal textures are never, correctly speaking, *converted* into it, unless it be proved that the oily matter of the cellular tissue undergoes this change; and even on this supposition, it would be the conversion of an inorganic secretion or deposition, rather than of an organic tissue into melanotic matter. The new matter is, on the contrary, deposited in the substance of the textures and organs, or is infiltrated between their component fibres. These circumstances, together with its appearance in several of the bones, where it seems to have occupied the situation of the marrow, would give some countenance to the notion, that melanose matter was a degenerate or morbid modification of the adipose secretion. To this idea, however, an unfortunate objection is presented in the melanotic masses found occasionally in the liver, spleen, and substance of the kidneys. Its occurrence in the pancreatic substance, forms little or no valid objection ; for the quantity of adipose cellular substance with which the parts of this gland are connected, may, without violence or improbability, be regarded as the primary matrix of the morbid deposition. If subsequent observation shall succeed in removing the objection now stated in regard to the liver, spleen, and kidneys, by showing that the melanotic matter is confined to the cellular substance of these organs only, some light may be expected to be thrown both on the nature and on the formation of this singular disease.

Upon the whole, the idea that the melanotic matter is a peculiar secretion, as advanced by Dr Henry and Mr Fawdington, possesses a high degree of probability. But in what form, in what mode, or by what agency it is secreted, are questions which the facts hitherto collected enable us neither to consider nor to decide. It may be deposited in a solid form, and may afterwards become liquid ; or, conversely, it may be secreted as a fluid, which gradually acquires consistence, and some degree of solidity. The late lamented pathologist of pulmonary diseases concluded, that melanosis has two stages—a stage of crudity, when the melanose matter was consistent and solid,—and a stage of *softening* (ramollissement), when it became more or less fluid. Dr Cullen and Mr Carsewell, on the contrary, are inclined to think, from the dissections which have fallen under their observation, that melanose matter is deposited originally in a fluid form, to be eventually converted into a consistent and solid substance. These gentlemen found the matter of the small tumours, which are justly supposed to be of short duration, to be softest, often even as fluid as cream. A similar conclusion may be deduced from the fact observed by Chomel, in the case above-mentioned, and also from that given by Mr Fawdington,—namely, that the melanotic deposite in the liver was more fluid in the centre than in the circumference of the cysts. It is manifest, however, that Mr Fawdington follows Laennec in placing the stage of fluidity posterior to that of solidity. But if melanose deposite be regarded as an inorganic secretion, the hypothesis of the liquid state being primary, as suggested by the authors above-mentioned, is unquestionably the most natural, and is embarrassed with fewest difficulties.

Concerning either the local or the constitutional effects which result from the presence of melanose deposition exceedingly little is known. The only local uneasiness which attends its presence manifestly arises from mere pressure and distension;

and in no instance does it appear of itself to be the seat of acute pain, or any sort of animal sensibility. The constitutional effects are evidently very trifling, if we make allowance for the gradual and general occupation of important organs, which the deposite accomplishes before the fatal event. According to the observations of Dr Cullen and Mr Carsewell, the constitutional irritation is almost imperceptible, even when important organs, as the heart and lungs, are affected. And though Mr Fawdington states that the symptoms of his case were as distinctly hectic as in pulmonary consumption, even this effect may be expected to follow the occupation of so many organs, with a new substance, without ascribing to it direct irritating properties.

It is time, however, to draw these observations to a conclusion. We must not close the short pages of Mr Fawdington without saying a few words on the beauty of the delineations of the diseased organs, with which they are accompanied. Mr Fawdington has succeeded in obtaining eight coloured delineations of the following objects;—the eye of his patient before and after extirpation; the melanose tubercles of the subcutaneous cellular tissue as seen through the skin; the tumours on the liver, and of its interior displayed by sections; the interior of the kidney in the same manner; a portion of the ileum; and the melanotic bodies in the heart and in the lungs. These delineations are done from stone; and we may be allowed to say, without exaggeration, that they are not only the best we have seen in this country, but equal, if not superior, to any thing that has yet reached us from the continent. Not only are they particularly happy for accuracy and delicacy of outline; but for shading, colouring, and general neatness, we have seen nothing to equal them in the lithographic way. The sixth engraving, representing several turns of ileum, affected with melanotic deposites, is a most finished specimen of art in this respect. In short, these plates make a nearer approach to coloured engravings on copper than any we have yet been fortunate enough to see. To productions of such merit, it is due to say, that they were executed by Mr James, an ingenious artist of Manchester, and coloured under the superintendence of Mr Fawdington. The author may congratulate himself on obtaining delineations done with so much taste and beauty.

ART. XI.—*A Treatise on Diet: with a view to establish, on practical grounds, a system of Rules for the Prevention and Cure of the Diseases incident to a disordered state of the Digestive Functions.* By J. A. PARIS, M. D. F. R. S. Fellow of the Royal College of Physicians, &c. London, Underwoods, 1826, pp. 307, 8vo.

THE physician—the valetudinarian—and the man of sedentary occupations—cannot fail to receive a great deal of pleasure and instruction from the perusal of this little work. It would not be difficult, indeed, to find objections to its details. One would have expected, for example, in his physiological views of the theory of digestion, a fairer and more complete account of the labours of foreign as well as British authors; and it is difficult therefore to perceive, why he has passed without notice the labours of Chevreul on the bile—of Prévost and Dumas on the function of the kidneys—of Breschet, Vavasseur and Edwards on the nature of the nervous energy that superintends the functions of the stomach—of Chossat on the relation between digestion and secretion of urine—of Edwards on cutaneous transpiration and absorption—not to mention the more recent and elaborate researches of Gmelin and Tiedemann—and of Leuret and Lassaigne on the alimentary functions. In the lesser details, too, physiological, as well as practical, he has often laid down the fact with a decision which the state of our knowledge does by no means justify; while in several other particulars it would not be difficult to prove that his statements and opinions are actually erroneous. And farther, to mention only one other fault, it would be an easy matter for the austere critic to convict him of frequent carelessness of style.

But it must be confessed, that these defects, with the exception of the last, are such as no reasonable man could expect to be wholly wanting in a work which was intended to be succinct in its narrative, popular in its form, and authoritative in its precepts. On the other hand, while it displays a sufficient degree of scientific research to rivet the attention of the scientific physician, it bears throughout that stamp of plain common sense, and that freedom from mysticism, which are necessary to make it acceptable and intelligible to the routine practitioner, and, above all, to his patient. In particular, it appears admirably well calculated to correct the rigour and ultraism on the subject of diet, which are assumed by the generality of practitioners at present as a cloak to their ignorance, and still more to remove the unnecessary fears which dyspeptic patients entertain of the discipline which they are led to think they must submit to, when their complaints are treated, as they can alone be skilfully treated, by the dietetic method of cure.

As Dr Paris's book, then, is one which should never be out of the practitioner's sight, and as it is already condensed even perhaps too much, it would be absurd to attempt transferring the substance of it to these pages. All that can be looked for is a short enumeration of its contents, with some illustrations from the more original parts of it, and a few comments on the statements, as to which, it is conceived, he has allowed himself to fall into error.

The object of the work is to point out the relative digestibility and nutribility of various aliments in relation to those who are either actually dyspeptic, or by idiosyncrasy or profession are predisposed to become so.

After a short introduction on the contradictory opinions held by practitioners on the subject of diet—on the discredit and uncertainty which have in consequence been thrown over the dietetic mode of treating diseases of the stomach—and on the absurdity of the ascetic precepts inculcated by many physicians and writers on diet, Dr Paris proceeds to give a preliminary view of the anatomical structure of the digestive organs, and of the physiology of digestion.

In the first department of this topic, which is discussed with great clearness and precision, he describes shortly the alimentary canal itself—the glands subservient to the secretion of the digestive fluids—the vessels for conveying the digested food into the circulation—and the organs which are subservient to the subsequent sanguification of the nutriment, by removing useless, noxious, or over-abundant materials,—namely, the lungs, kidneys, and skin. The relation which the last organs bear to those of digestion is very neatly unfolded both in the anatomical, and subsequently in the physiological part of the inquiry.

In the second or physiological department, he treats first of nutrition generally, then of the operations preliminary to the passage of the food into the stomach, next of chymification, next of chylification, and, lastly, of sanguification and its collateral functions. This part of the work is of course by nature the most open to error, and consequently is in fact the most liable to objection. Our knowledge with regard to the phenomena and nature of the foregoing processes, after all that has been done of late years, is still incomplete. And therefore it certainly appears that Dr Paris often lays down the law rather too positively, nay on some occasions adopts opinions not only wrong, but (which is also of some consequence in a popular work) contrary to the general sentiments of physiologists. For example, we are sure, that neither the general opinion of men of science, nor actual facts will bear him out in the opinion he has expressed regarding the properties of the gastric juice, the nature of the nervous energy, or the question as to the absorbing power of the skin. Whatever Montégre's countrymen, led away by nationality, may think of the experiments he made to disprove the solvent power of the gastric juice, it is impossible to permit Dr Paris to follow them in the adoption of a negative fact in face of the positive results obtained by Spallanzani, Gosse, Steevens, Gmelin and Tiedemann, and other lesser experimentalists. It is impossible to admit so important a doctrine as that of Wilson Philip regarding the identity of electricity and nervous energy, in face of the simple explanation which the experiments he founds on have received from the later conjunct researches of Breschet, Vavasseur and Edwards. It is incorrect to deny the possibility of cutaneous absorption, in obedience to the opinion of Seguin, when it has been rendered so highly probable by the admirable inquiries of Dr Edwards, and the later observations of Dr Dill.

While stating these objections, however, it is right to mention also those details which do him credit by their originality or the neatness with which he has unfolded them. Thus, tracing the experimental researches of Brodie, Prout, and Magendie, he gives a very distinct exposition of the chief purposes of the bile, proving that it is not only a stimulus to the intestines, but an essential ingredient for the formation of chyle. He corrects satisfactorily the erroneous notions of some, that chyle is similar to milk, and does not vary with the food. He shows very clearly that while the food is digested slowly and is taken up as nutriment only in the intestines, mere drink, if not capable of yielding aliment, as also foreign substances of the same description, are absorbed at once from the stomach,—that under peculiar circumstances, however, some fluids, which are usually absorbed in the stomach, undergo complete or partial digestion,—and that this is the cause of the different effects of wine and spirits in different circumstances. And he expounds very elegantly the present doctrines on the relation of the functions of the lungs, kidneys, and skin to the process of sanguification,—stating, that, while the lungs remove the superfluity of carbon, the kidneys remove the superfluity of azote, foreign substances either useless or noxious, and likewise the excess of an overabundant sanguification. In his account however of the effect of differences of food on the operations carried on in the lungs, he is not altogether successful: there are several obvious contradictions in the details. But the subject is one of great difficulty, and hitherto very little known. Our author puts too much reliance on what has already been done in this field; the result of which is, in our opinion, positively nothing. It may be questioned too whether his notions are correct as to the relation subsisting between the objects of the political economist, and of the writer on diet: It is hardly possible to concur with him in his declaration that the object of the latter is to preserve the feeble only; for the same rules which tend to preserve the feeble, will obviously confirm the health, strength, and longevity of the strong.

Next follows an appendix on the connexion between the digestive functions and our sensations. Here he gives an account of the theory of hunger, inferring from the whole discussion, that it arises from the want of nutritious fluids in the body, not of food in the stomach. He then infers from the various facts regarding the sensations we experience during digestion, that of its three stages, chymification, chylification, and sanguification, no two can be carried on at the same time without disturbing one another, and consequently that one of the first dietetic rules should be, *never to disturb nature in her operations by commencing a new meal, till the previous meal has gone through the last stage, that of sanguification.* This we are satisfied is a most excellent rule both for the sick and the healthy, but at the same time one which both the sick and the healthy are in the daily practice of violating. He is certainly incorrect in a statement with which he concludes this appendix, namely, that the cessation of appetite is owing to the quality and not to the quantity of food. Indeed it is not easy to understand what he intends by this assertion; which is contradicted by various facts dispersed throughout his own book.

This concludes the first part of the work, and introduces the practical department of it, which is discussed in two divisions. In the one he treats of the digestibility and nutribility of the different kinds of aliments; in the other he treats of indigestion, its causes, symptoms, and mode of cure.

In the first division the arrangement is faulty. He first discusses the subject of the digestion of solid aliment, of the influence of condiments, and of the digestion of drinks; and having done this, returns to solid aliments and discusses *seriatim* their digestibility and nutribility.

He commences with an account of the relative effects of vegetable and animal food, by stating the result of confinement to a diet purely animal and purely vegetable. It certainly does not appear, on an examination of all the facts, that our present knowledge is very satisfactory on these heads. We are not sure that Dr Paris is correct in attributing scurvy to a pure animal diet; more influence must be allowed to collateral circumstances than he has done. He very properly objects to Magendie's experiments, on the impossibility of nourishing carnivorous animals on pure unazotized vegetable food, that the physiologist gave the food in too concentrated a state, thereby overlooking the important influence of *bulk* upon digestion: concentration of the food he shows to be injurious, by taking away that degree of distension which is requisite for the stomach carrying on its mechanical operations,—a very important suggestion in its practical bearings. For our own parts, we have been from the beginning satisfied, on other grounds, (which it would be out of place to discuss here), that Magendie's experiments are quite inconclusive.

Dr Paris next, after a brief notice of the classification of aliments, proceeds to notice the relation subsisting between the digestibility and nutritiveness of the several kinds, shows that many substances are liable to be unnutritive, because they are indigestible, and thereby illustrates the double importance of attending to their digestibility and the extraneous means of improving it. He then enumerates the circumstances that affect their digestibility, such as the age of the animal or plant—the sex of the animal—the mode of killing—the mode of cooking; on all of which topics he gives judicious practical instructions. From that subject he passes to the consideration of Condiments,—recommending slight bitters and salt, as pointed out by the suggestions of nature,—showing the bad effects of unsalted food, and the occasional cure of dyspepsia by simply increasing the quantity of salt,—advising the use of vinegar, as salutary in the case of rich soups and raw vegetables,—counselling the use of oil in small quantities with sallads, as tending to prevent their fermentation in the stomach,—and condemning unequivocally all aromatic condiments, at least in cold climates.

On the subject of drinks, he observes that we must not reason from peculiar idiosyncrasy, and infer that restricting the drink even generally aids digestion or promotes bodily strength; mentions the advantage of warm drinks to some dyspeptics, the reason of this, and the harmlessness of it in regard to the teeth; shows how a medium quantity of drink is best for digestion, because either too much or too little impedes the mechanical motions, or *churning* of the food; and recommends the use of drink neither before nor after, but during each repast,—remarking, at the same time, that it is important to drink three or four hours after the chief repast, for the purpose of accelerating sanguification, by aiding the kidneys and skin in carrying off the excrementitial and superfluous matter. As to those who maintain, that man is a water-drinker by nature, and can never depart from the rule pointed out to him, without injury to his health, Dr Paris very properly observes, that he is a lucky man who can retain his health under this rule of nature, that the great bulk of mankind have already modified the constitution of their stomachs beyond the power of return to the rule, and that nature clearly admits of a certain degree of such modification without harm. He subsequently proceeds to describe the different kinds of water, the mode of purifying them, and the best way of adding to them as nutritive drinks, by converting them into gruels, tea, chocolate, and coffee. On the important subject of tea he has made some very correct remarks. In the first place, he is a decided Johnsonian: but he states, that very many people injure their digestion by taking tea too soon after dinner; that nature calls for it or some of its substitutes during the stage of sanguification; that therefore it should not be taken till three or four hours after dinner. We are convinced he is right. As to those few who condemn tea altogether, and refer to their personal experience, the Doctor's observation is conformable with our own, that nobody avoids tea upon principle, who does not drink something a great deal worse. He approves of coffee, but condemns chocolate as too oleaginous, and soda water as hurtful by causing distension, if not in the stomach, at least in the intestines.—Under the head of wine, he takes occasion to correct the nonsense of those who, reasoning evidently from its abuse, condemn its use altogether; and states that even many dyspeptics are the better for it. He then enumerates the various circumstances in which the different kinds of wine are to be preferred; approves of table beer; condemns without exception all pure spirits and liqueurs; and in permitting the occasional use of diluted brandy, recommends that it be diluted twelve hours before it is drunk, as he thinks it is then converted into a compound, which, instead of being absorbed from the stomach like pure spirit, undergoes digestion like wine.

Having thus taken a general view of the different kinds of food and drink, he returns to the subject of solid aliment, and treats of the digestibility and nutritiveness of certain kinds of it,—of the periods for meals, and of collateral circumstances, such as exercise, rest and sleep before and after meals.

He commences with observing that nutritiveness and digestibility are not synonymous terms, and that while nutritiveness depends on composition, digestibility merely depends on the food being in such a state as to be best subjected to the mechanical part of the process of digestion, that is, agitation or churning. As this statement is made in several other passages of the work, and appears incorrect, we cannot pass it without one or two comments. In stating that all kinds of food, which are properly adapted for undergoing the process of churning, are equally digestible, our author falls into the error of conceiving all substances equally digestible, because they are equally well digested by *different* people. It may be true that oils and fatty matter are difficult of digestion, in part because they are not easily acted on by the process of churning, and that they become much easier of digestion by habit. But it may be questioned whether habit ever renders them so rapidly digestible as fleshy aliments, or whether the mechanical obstacle is the only reason of their general indigestibility. It is a very remarkable fact, at least, that all the animal and vegetable principles which form the leading ingredients in the articles of food most easily digested by mankind in general, approach very near each other in the proportion of their elements, and that the farther they are removed from this proportion, the more indigestible do they become.

We must hasten through the remainder of this section, in order to leave some space for the author's subsequent remarks on dyspepsia. Alluding to milk as an article of diet for invalids, he recommends, in order to make it more nutritive, to boil in it a linen-bag filled with mutton-suet. He very properly commends fish for convalescents, as neither yielding too much nutriment, nor requiring too much effort for its elaboration. But he condemns oysters in all their forms, unless for good, sound, powerful stomachs: It is a great mistake, he thinks, (and we perfectly agree with him,) to suppose, as many do, that they are easily digestible, whether raw or cooked. His remarks on the farinaceous grains are all very judicious. He is equally judicious in his condemnation of nuts; but perhaps abuses chesnuts too vehemently. We have certainly found them more easily digested by most people than he avers they are.—The succeeding observations on the periods and frequency of meals are of great practical importance. Every observing physician must agree with him in disapproving of the custom, which many dyspeptics in the first stage of the disease adopt upon principle, of eating little and often. It will be found that an interval of five or six hours agrees best with most stomachs; but Dr Paris mentions, that by idiosyncrasy some people do better with a much longer interval; and that he has even succeeded in curing incipient dyspepsia at once, by enjoining the patient to prolong the period between breakfast and dinner. He insists, that if health be a man's chief object, as subservient to the activity of all his pursuits, and the perfection of all his enjoyments, dinner ought not to be later than three o'clock. Tea should be taken four hours afterwards. Supper he disapproves of in general, but allows that some are the better for it. He might have added an excellent rule from the practice of trainers, namely, never to go to bed till an hour and a half or two hours after supper. There may be exceptions; but the rule is in general an excellent one, we are persuaded.—As to the quantity to be taken at each meal, he with great propriety sneers at Cornaro and his modern admirers for their total disregard of constitutional peculiarities, insists that stinting one's self of food is quite as injurious as over-eating, and proposes, instead of any rule founded on Cornaro's system, *that the proper quantity of food be judged of by the first feeling of satiety, the meal being limited to one or two articles, and being eaten deliberately.* He allows, however, that occasional abstemiousness is very advantageous, and considers its utility to spring from the same principles which have directed the ancient athletes and modern bruisers not to attempt to maintain too long the athletic constitution. In our opinion, facts are not wanting to bring into doubt the generally received notions regarding the impropriety and impossibility of maintaining the athletic constitution. At any rate, the utility of occasional abstemiousness must be referred to different principles, and perhaps simply to the fact, that even when a person is under regimen, he eats more than enough, and a little abstemiousness therefore relieves the system of the superfluous load.—On the subject of collateral regimen, he disapproves of the instructions given by some to take exercise to fatigue, and then to rest an hour before meals ; but recommends a little gentle exercise, particularly before breakfast. The proper time for full exercise is during *Sanguification*, namely, four hours after eating. Riding is preferable to walking for invalids. The reason he assigns for this is too hypothetical. The simple reason perhaps is, that, when the individual finds he has got enough, he can easily bring it to a close without fatiguing himself, which is not so easy in the case of walking. Digging he considers an admirable exercise for dyspeptics.

The third part of the work treats of indigestion,—its causes, forms, symptoms, and method of cure. He begins with excluding symptomatic indigestion ; which, in opposition to the prevailing fashion with London physicians, he alleges is much oftener produced than is generally imagined, by some other cause besides disorder in the digestive organs themselves. He then considers the form of indigestion, which arises from faulty chymification. Under this head, he has given a very neat exposition of the incipient stage of true stomachic dyspepsia ; and cautions the man of sedentary pursuits to look well to himself, when he finds that he is liable to transient attacks of dyspepsia, in consequence of the operation of passions of the mind, slight over-distension, or disturbance of the functions of the skin or kidneys. He next considers duodenal indigestion, referring to the opinions of Dr Yeatts in the sixth volume of the Transactions of the College of Physicians, and attaching great importance to that gentleman's views of the part which the duodenum plays in disorders of the digestive canal. He then notices the different kind of dyspeptic headachs, and distinguishes them from the other varieties.—Next follows a very elegant summary of the symptoms of dyspepsia in its progressive stages, in which he distinguishes the symptoms indicating mere loss of tone, or weakness of the gastric juice, from those indicating low inflammation in the stomach or duodenum, and from those indicating organic mischief. To this is annexed a very full and useful table for facilitating the investigation of the causes, nature, and seat of indigestion in special cases, followed by a concise but comprehensive commentary on each of the articles contained in the table. It is impossible to abridge this part of the author's narrative; neither can it be exemplified by an extract, as its great merit consists in the combined view given of all the particulars from which indications may be derived. It forms an excellent manual for the investigation of dyspeptic disorders. The author's own views, conjoined with the late researches of Dr W. Philip, are well calculated to do away with the conjectural and hap-hazard method of diagnosis and cure, into which too many routine practitioners are apt to stumble.

Of the section on the cure of indigestion, as relates to diet, exercise and medicinal treatment, little need be said, as the reader would not comprehend it thoroughly, without an accurate knowledge of the preceding section on the differences produced in the disease by differences in its seat. Dr Paris commences with some just criticisms on the precepts inculcated by Mr Abernethy regarding the general regimen of dyspeptics; then treats of the remedies for flatulence; recommends the *vinum colchici* in the varieties of dyspepsia depending on duodenal irritation; lays down the proper rules for the administration of laxatives, particularly when the disease is accompanied with spasmodic affections of the intestinal canal; treats of the advantages and mode of operation of white mustard-seed; considers what rational ground there is for the antiphlogistic treatment of the Broussaists; discusses the merits of bitters, blisters, heat, local as well as general, cold bathing, the shower-bath, warm bathing, change of air, and change of scene and habits; next he winds up the whole with a recapitulation, and short general rules; and he annexes in an appendix a few interesting and apposite cases of a very complicated nature.

Here, then, we must bring this outline to a close, hoping that our readers will have seen, in the preceding summary, sufficient reasons for the high character we have given of his work at the outset; or, at all events, sufficient encouragement for them to adopt the only course by which they can do him justice, and receive benefit by his labours,—namely, to peruse the book itself carefully and often.

Art. XII.—*Novus Thesaurus Semeiotices Pathologicæ*, quem collegit atque edidit Mauritius Hasper, Medicin. Chirurg. atque Philosoph. Doctor in Universitate Literarum Lipsiensi, Societat. Medic. Pract. Parisiensis, Naturæ Scruttatorum Lipsiensis et Economicæ Lips. Sodalis. Vol. i., Lipsiæ, 1825. Sumptibus C. H. F. Hartmanni; Londini, apud Black and Young; Parisiis, apud F. B. Bailliere.

Various reasons induce us to notice the appearance of this volume. Of the dissertations, either inaugural or occasional, which are annually published in the medical schools of the Continent, though many contain information too valuable to be consigned to the dusty shelves of the academical library, yet they are too small to make separate books of proper size, and are too large to be admitted either into periodical works, or into the transactions of scientific societies. For the preservation of such productions in a collected or accessible form, the student has reason to be thankful to the humble but useful industry of Haller, Sandifort, and Baldinger, who, though themselves equally eminent as teachers and authors, did not disdain to collect the scattered dissertations written by their predecessors, their instructors, their friends, and their pupils.

The voluminous but excellent collections of Haller, consisting of nineteen quarto volumes, published in 1750, 1755, and 1758, comprised all the best dissertations on anatomy, surgery, and practical medicine, which were written by the most able anatomists, surgeons, and physicians of Europe, during the end of the seventeenth, and the early half of the eighteenth century. The Thesaurus of Sandifort, consisting of three volumes quarto, contains such dissertations and treatises as were published subsequent to the date of Haller's collection, and previous to 1778. Baldinger, the professor of Gottingen, followed, and, by his selection of treatises on subjects in practical medicine, completed the series to 1782.

The example of these collectors was imitated by others to various extent and in different modes. Oberkamp had already collected several of the Leyden dissertations in 1767. A collection of the Upsal Dissertations, on subjects in medical chemistry and chemical pharmacy, was published between 1775 and 1789, by J. G. Wallerius, professor of metallurgic chemistry and pharmacy. Wittwer of Noremberg collected the best dissertations of the Strasburg school in 1777 and 1781; and J. D. G. Brose published two volumes of the most valuable ones of the Gottingen school, in 1795. Perhaps one of the most able works of this kind, next to that of the great Haller, is the *Delectus* of Treatises, published between 1785 and 1795, in twelve volumes, by John Peter Frank, the learned and venerable professor of Pavia. Even collectors of dissertations on separate departments of medical science were not wanting. Thus Kurella, so early as 1754, published a collection of dissertations on subjects relating to the history of Anatomy and Medicine; and his example was soon followed by Gruner and Ackermann. Christian Frederic Reuss collected three volumes of Medico-Chirurgical Dissertations on Diseases of the Eyes in 1783; and Christian Frederic Ludwig collected the minor writers on Neurology, in four volumes quarto, in 1791.

Lastly, J. Christian T. Schlegel, published first a *Thesaurus Pathologico-Therapeuticus*, secondly, a *Thesaurus* of Materia Medica, and thirdly, a *Thesaurus* of *Semiotics*, each consisting of select inaugural dissertations or able essays, on subjects connected with these branches of medical knowledge.

Even the *Thesaurus Medicus*, or selection of inaugural dissertations published in 1785, by the committee of the Medical Society of this place, under the name of Smellie, and that compiled about the same time by Charles Webster, as a system of practical medicine, though small imitations of the labours of the distinguished continental collectors, were valuable services rendered to the studious cultivator of medical knowledge.

The uses of collections of this description are too obvious to require explanation. If it is an advantage to consult with facility and without loss of time any given dissertation on any subject;—if it is an advantage to the student to have ready access to all the best information on any point or points in anatomy, physiology, pathology, or therapeutics;—then the advantages of such collections are manifest and undoubted. By means such as these, an essay containing one or two curious, and perhaps valuable facts, or some ingenious, and, it may be, just generalizations; or in some instances, a dissertation consisting of a diligent and faithful inquiry, into some undetermined question of physiology or pathology, instead of being either forgotten, or so neglected as to be known but to a few studious readers, is not only rescued from oblivion, but is placed in a situation in which it may be consulted with the greatest facility by every member of the profession. It is also no trifling merit of this species of compilation, that the greater part of the treatises written on particular branches of medicine, and on particular subjects of medical inquiry, are thus collected before the reader, and within the compass of one or two volumes, submitted to his inspection.

It will not, therefore, be matter of wonder, that we take the present opportunity of recommending the labours of Dr Hasper to the attention of the reading part of the profession. The present volume is the first of a series which the author, in laudable imitation of the great examples above-mentioned, proposes to publish,—containing valuable dissertations, relating principally to that department of medical knowledge called *Semiotics*, or the doctrine of signs and symptoms.

Dr Hasper appears to have adopted, as his immediate model, the work of John Christian T. Schlegel, already mentioned, on the same subject. In the choice of treatises or dissertations, he has chiefly kept in view the precision and accuracy, as well as the novelty of the information which they communicate on the connection of symptoms with pathological processes; and we are happy to say that his success has been considerable.

This first volume contains five dissertations on various subjects in pathological semiotics. The first is the inaugural dissertation of Dr Henry Francis Thyssen, on the pulse and its morbid conditions and varieties. The second is a prize essay on the morbid states of sleep and watching, by Frederick Augustus Ammon, of Dresden. The third is a very elaborate thesis on the urine, its morbid states, and the information which they communicate regarding the sound or sick state of the system at large, by Maurice Adolphus Naumann, of Leipsic. In the fourth, the author, Charles W. M. Beust, attempts very ingeniously to collect and arrange the symptoms of morbid action to be derived from the countenance, its features, and the exterior appearance in general. The fifth, and last, is a short sketch by Philip Meyer, of some morbid symptoms to be derived from the state and aspect of the nose, and the sense of smelling.

It comes not within our plan, to consider or estimate the individual merits of these essays. It is sufficient to say, that, upon the whole, the attempt of Dr Hasper is entitled to the gratitude of the medical reader; and we trust it will not fail to be followed with the success which it deserves. We need scarcely remind Dr Hasper that this will mainly depend upon the judgment with which the dissertations are selected. In the subsequent volumes, therefore, Dr Hasper will find it his interest to look well not only to the information which the dissertations contain, but to its accuracy and its utility, as a means of recognizing and distinguishing diseases.

ART. XIII.—*Practical Observations on Surgery; more particularly as regards the Naval and Military Service. Illustrated by Cases, and various Official Documents.* Second Edition, considerably enlarged. By ALEXANDER COPLAND HUTCHISON, late Surgeon to the Royal Naval Hospital at Deal; Member of the Medical and Chirurgical Society of London; Corresponding Member of La Societé Medicale d'Emulation of Paris; Senior Surgeon to the Westminster General Dispensary; Consulting Surgeon to the Royal Metropolitan Infirmary for the Diseases of Children; Surgeon to his Majesty's Dock-yard at Sheerness; and to his Royal Highness the Duke of Clarence, &c. &c. London: Printed for Thomas and George Underwood, 32, Fleet Street. 1826.

THE first edition of these observations acquired for the author the character of a judicious and intelligent surgeon, zealous to promote the advancement of the art, and anxious to diffuse the results of his experience among the younger members of the profession. It gives us pleasure to say, that the present enlarged form of his work, will in no respect impair this well-merited reputation; and, if the esteem in which an author is held, bear any proportion to the value and utility of his writings, that which falls to the share of Mr Hutchison ought not to be inconsiderable.

The present volume consists partly of the essays formerly published, enlarged and improved, partly of several interesting chapters, entirely new.

The chapter on Amputation belongs to the first class. It is augmented by the addition of the "Further Observations," &c. which Mr Hutchison published in 1817, containing reports of the wounds and injuries, and consequent amputations, performed on the occasion of the Algerine expedition. This tract, and the valuable information which it contains, fell under our observation when it was first published, (see Vol. xiv. p. 643;) and we shall not now resume the consideration of the question which the facts and arguments adduced by Mr Hutchison may be conceived to have in a great measure decided. Mr Hutchison showed himself to be not only a zealous, but a candid and able advocate for immediate amputation; and in the present edition he has collected and arranged his evidence in order so perspicuous, that simple perusal must go far to convince every mind not biassed by previous habits and deep-rooted prejudices,—that the practical rule which he lays down is well-founded and judicious.

The principal novelty in this chapter is a note or postscript on the remarks which Mr Guthrie made in the second edition of his work, on the previous observations of Mr Hutchison. The chief object of the author is to disavow the influence of all feelings, beyond the desire of establishing the truth of his former doctrines, and to claim whatever merit they possess, by demonstrating that he, (Mr Hutchison,) was the first author in this country, who undertook to prove the insufficiency of the arguments commonly adduced as a rule for *any delay, however short*, in amputating a wounded limb which cannot be saved. The note is long, and of such a nature as renders it difficult to communicate a just notion of the train of argument pursued. It is sufficient to say, that Mr Hutchison argues the point with ability; and we think fully establishes the two principles for which he contends. It must in short be conceded, first, that the importance and the urgent necessity of immediate amputation in severe gun-shot wounds of the extremities, was much underrated, till Mr Hutchison undertook to impress these points on military surgeons; secondly, that the danger of immediate amputation, or what is much the same, the advantage of delay, was at once misunderstood and exaggerated; and, thirdly, that to Mr Hutchison belongs the merit of first calling the attention of the profession in general, and of military and naval surgeons in particular, to the fact,—that, when it is once agreed that a limb is so severely injured by gun-shot wound, as either to threaten the life of the patient, or to be of no service to him, immediate amputation is not only free from danger, but is in truth the safest course which can be pursued.

The conclusion of these postscript remarks is of a nature not very pleasant. In the course of the discussion of the question of immediate or deferred amputation, Mr Guthrie and several of his followers, both military and naval surgeons, insisted much on the constitutional shock or alarm occasioned by gun-shot wound, as a reason for delay. As a proof of the absence of this shock, the case of Lieutenant Colonel Beckwith, who was wounded by a ball in the leg at the battle of Waterloo, was adduced; in reference to which, Mr Guthrie had said, that Mr Hutchison must have mistaken the meaning of the colonel, when describing the wound and the immediate consciousness of its infliction and effects, and he had given a description from the testimony of Colonel Beckwith, in such terms as to invalidate the correctness of the statement given by Mr Hutchison. In contradiction to these misrepresentations, the latter gentleman enters into a vindication of his original account, which he substantiates by reference to the personal and written testimony of the Colonel himself. Although we do not feel inclined to enter the lists of mere personal controversy at any time, and though the determination of the matter of fact is in this instance of no moment to the decision of the scientific question in which it originated, yet as it is always desirable to see discussions of this nature conducted with perfect temper, and without even the shadow of imputed misrepresentation, we may express our hope that Mr Guthrie will reconsider the subject, and will at length give such explanation as may either place the contested circumstances of this wound in their proper light, or appease the offended honour of Mr Hutchison. We cannot leave the subject without expressing our regret that, in the course of an important scientific discussion, a dispute so trifling and yet so unpleasant, should tend to create a misunderstanding between the respectable individuals by whom, principally, it has been conducted.

The second chapter, on erysipelas, is augmented by some new observations on the treatment which Mr Hutchison recommended, and several cases in illustration of its efficacy. It is well known that Mr Hutchison treated this disease by deep incisions into the affected limbs; and though we are not surprised to find that every surgeon who has practised this mode of treatment is ready to vouch for its efficacy, yet we think it rather singular that attempts should be made to ridicule it. This, we conceive, is mainly to be ascribed to the unfortunate name under which the disease was described by Mr Hutchison. It is undoubted that it *seems* to be a severe mode of curing a disease so common, and on some occasions so mild, as erysipelas. But when it is once explained, that this inflammation, which is seated in the subcutaneous and intermuscular cellular membrane, may produce extensive sloughs of this tissue, may irreparably destroy the muscles, the tendons, and the fasciæ, and may even inflict injury on the bones; when, above all, it is remembered that it creates constitutional disturbance, so violent and so general, as in nine of ten cases to threaten the life of the patient, and in a majority to terminate fatally;—it will speedily be discovered, that the ridicule is very much misapplied, and that, if the remedy is really efficacious, the supposition of its severity being allowed to influence the surgeon, is the only subject either for ridicule or for censure.

On another point, which Mr Hutchison conceives to be a fair subject of complaint, we feel more difficulty in agreeing with him, and, for the same reason which we have already stated,—the misapplication, as we conceive, of a name. Mr Hutchison expresses his surprise that Dr Duncan junior, in his Essay on Diffuse Inflammation of the Cellular Membrane, has mentioned the name of O'Halloran as the first to recommend this practice; and he further contends, that, since the section of this author's work, in which he speaks of profound incisions, is entitled, " Gangrene subsequent to Phlebotomy," Mr O'Halloran must be understood to have employed for the *cure of gangrene* the practice, which Mr Hutchison recommends to prevent suppuration in *erysipelatous inflammation.* Now, the whole matter at issue consists in a mere difference of names, the one author denominating *gangrene* what the other terms *erysipelas*, and neither, in our estimation, being pathologically correct. The disease which Mr O'Halloran calls gangrene certainly bears some resemblance to the traumatic form of that affection, but it is still widely different from it; and what Mr Hutchison calls *erysipelas* is certainly accompanied, in many instances, with spreading redness of the skin; but it is again entirely different from genuine erysipelatous inflammation, in being primarily and essentially an affection of the cellular membrane. At the same time, notwithstanding these mistakes, and notwithstanding that incisions were practised by Mr O'Halloran for the cure of his gangrenous inflammation, we willingly concede to Mr Hutchison the merit of originality in applying this method of treatment to the disease which he describes. Mr Hutchison, we believe, knew not that Mr O'Halloran had employed deep incisions in treating his disease; or, if he did, he was not aware that the disease was pathologically the same with the severe form of inflammatory affection, which he had for several years witnessed in the lower extremities of the seamen of Deal Hospital, and for which he had found in the deep incision a remedy so uniformly efficient and successful. In either case, it is manifest that the merit of Mr Hutchison would have been equally great had Mr O'Halloran's book never been written; and we believe that Dr Duncan never meant to deny, that Mr Hutchison was the first who, in the treatment of the disease named by him *erysipelas*, suggested the method of cure by deep incision, and who showed its efficacy by actual example.

The third chapter, on feigned diseases, though entirely new, in so far as the former edition of the author's work is concerned, is, however, already before the public, through the medium of the Medical and Physical Journal. In its present form, in which it is somewhat enlarged, and in other respects improved, it contains a great proportion of instructive matter, communicated in a highly interesting and agreeable form. The author treats of factitious ulcers; simulated fever; feigned diseases of the heart; pretended contractions and paralytic affections of the hands, elbows, or knees; inflammation of the eyes, artificially induced; pretended incontinence of urine; feigned vomiting; feigned diseases of the loins; epilepsy; œdematous swellings of the extremities artificially induced; pretended hemoptysis, hematemesis, and disease of the stomach and bowels; and, lastly, simulated stone, stricture, and hernia. Of a chapter embracing so many different subjects, it is impossible to offer an account sufficiently complete to do it any justice. We shall therefore confine ourselves to the notice of one or two of the principal topics, in the hope that our readers will thereby be induced to peruse the essay with attention.

Ulcers are induced artificially by removing the skin by scissors or a knife, or by the application of a blister, quick-lime, or a mineral acid; and the sore is afterwards kept open by the same means, or by the use of a copper coin. Mr Hutchison had occasion to amputate the leg of a man in Deal Hospital for caries of the tibia, from the ankle-joint to the knee nearly. A piece of copper coin was found imbedded between the *gastrocnemius and soleus* muscles, nearly three inches from the margin of the ulcer. When this was shown the man, he confessed that he had thrust the coin into the ulcer about nine months before, with the hope of obtaining his discharge by being invalided. For preventing patients from tampering in this manner with sores on the legs, Mr H. recommends the use of a strong oaken box, in the shape of a boot, in which the leg is secured by padlock, so as to prevent it from being withdrawn.

Diarrhœa and *dysentery* are very often simulated, or rather artificially induced; and the means are various. "But that which was most resorted to by deluded seamen was a mixture of vinegar and burnt cork,—in what proportions I have never been able to ascertain: neither can I discover in what manner the burnt cork can assist in producing the disease in question. But certain it is that these were the ingredients most commonly had recourse to; and as certain is it, that some of the finest youngest men in the navy have fallen victims to the use of such substances, for the accomplishment of their unhappy purposes. I have also known convicts in the Penitentiary at Millbank, previous to the late malady breaking out, both in their cells and in the infirmary, break down, with their fingers, in their urinary utensils, a good figured or formed motion, and intimately mix it with the urine, so as to induce the belief that it was in reality a diarrhœal evacuation; but a little attention to the character and appearances, with strict watching, will in most cases lead to a detection of the imposture." P. 146, 147.

Under the head of *simulated fever* Mr Hutchison relates a case in which a prisoner of war at the Stapleton Depot, imitated the brown fur by covering his tongue with a layer of common brown soap, and induced severe vomiting with a quick small pulse by swallowing tobacco-juice.

An interesting communication from Dr Quarrier shows that several of the symptoms of organic disease of the heart, such as faintness, palpitations, and strong epigastric pulsation, were induced and maintained for some time by the use of powders, the chief ingredient of which was white hellebore. The extent to which this drug was taken by these ill-advised wretches is so great as to appear incredible, were it not known that it is extremely uncertain in its operation. A drachm or even a drachm and a half, was not unfrequently taken as a dose sufficient to produce the desired effects. The effects of these extreme doses were squeamishness, succeeded by incessant and violent vomiting and purging, racking pain at stomach; severe headach; extreme weakness and inability to move; frequent tremors; coldness, terror, and anxiety. The features were pale and shrunk; the eyes hollow; the tongue tremulous; the skin was covered with a cold clammy sweat, and the pulse at the wrists was scarcely to be felt. After some time, these symptoms were succeeded by red eyes; flushed face and violent throbbing of the temples; strong palpitations; great epigastric pulsation; with heat, thirst, rawness of the throat, and some enlargement of the tongue. The most obvious conclusion resulting from this fact is, that patients will often swallow doses of medicines which the boldest, or even the rashest physician would dread to administer.

Under the head of *pretended disease of the loins, from hurts, falls, or sprains,* a very interesting case of pretended injury of the spine is described, which we must allow Mr Hutchison to relate in his own words.

"A man named Bradley was admitted into Deal Hospital from his Majesty's ship of the line the La Hogue. He was stated to have fallen from the fore-yard into the sea, striking the region of his loins, in his descent, against the anchor-fluke. A few hours after the accident I visited this man in the hospital; and after the most attentive examination of the part pointed out to me by the patient as that which had been so severely injured, I found, to my utter surprise, that there was not the slightest mark of injury, either on the lumbar region or on any other part of the body; but the howling and screaming noise made by the patient at this examination was sufficient, with the circumstances above adverted to, to raise strong doubts in my mind as to the existence of any injury whatever, beyond the alarm occasioned by his fall from the yard into the sea; and which opinion I then distinctly stated to the patient.

"Bradley was young, vigorous, and obstinate, and a thorough-bred seaman withal; every attention was therefore paid to him; but for weeks together he declined to take any kind of sustenance, alleging 'that it made him sick, and injured his spine, which was broken;' and as a proof of this, his trunk was bent to nearly a right angle with the lower extremities. He continued throughout each night to make such a groaning noise in the ward, from actual pain as he said, that I was constrained at length, at the earnest request of the other patients, to move him into a small room by himself, and which stood somewhat back from the line of the main building.

"When a rug was spread on the floor of his ward, and his patient placed on his back upon it, for the purpose of examination, his legs and thighs were standing upwards at the same angle with his body as when he walked; and when his legs were pressed down to the floor, his body started up, and he then appeared in a sitting posture, to the great amusement of the hospital-mates, who assisted me on these occasions. Bradley continued to state, however, that his back being broken by the villanous anchor, he was no longer fit for the service, and hoped I would invalid him; while the loud and incessant noise he made, even in this distant abode, continued to annoy every body within the sphere of his vociferations.

"About this time, a companion of his in the lower ward, from whence he had been removed, addressed me one day in a whisper, and said he wished to speak with me alone. This fellow, Hopkins, had just had his own leg emancipated from the wooden boot, and by way of making himself useful to me, with the view that he might not himself be sent off to his ship with a branded ticket (of which seamen stand in great terror,) he addressed me as follows:—'You are quite right, sir, with respect to Bradley: he is a great rogue, and pretends not to be able to eat or to stand erect; but I have watched him,—have seen him get out of bed in the middle of the night, when he thought we were all asleep, and walk to the cupboard at the end of the ward as uprightly as you can walk, and where he uniformly every night made a hearty repast from the left provisions. He would then return to his bed in like manner, observing the utmost care and quiet, lest his comrades should be disturbed, and detect him.' Hopkins further stated, that Bradley had sent for him that very morning, when the latter bade him good bye, if he would not accompany him: and, in confidence, told him that, as the hospital clock struck eleven that night, he would make his escape in a certain direction across the green, and over the burial-ground wall; but at the same time strenuously urged the latter to join him in his escape from the lower ward.

"Upon this information, I directed the serjeant of the guard, after dark, where the soldiers should be planted to secure the deserter; placing myself in the operation-room, with all the hospital-mates, and the nurse of Bradley's ward; when, sure enough, just as the clock struck eleven, it was announced that white sheets were thrown down from the window of Bradley's room on the first floor, by which he descended very gently and safely. He then ran across the back green, to the wall mentioned by Hopkins, with all the uprightness and agility of a young man free from disease or injury of any kind; and on the following morning, when I visited him in the guard-room, he was very penitent, but appeared, when standing, to be still bent double, On his asking me to show him mercy, and not report him for punishment, I told him, that if he expected mercy at my hands he would that instant stand erect as he was when I saw him run across the green the previous night. He complied, stood up like a soldier on parade, and was discharged to his duty on board his ship." Pp. 171-174.

Hernia, though seamen are much exposed to its causes, is by no means very common among them; and Mr Hutchison never knew an instance of the operation being requisite, except in one solitary case, in which its necessity was discovered only by dissection, when the colon was found to be strangulated through the diaphragm. It is known, however, to be a disqualifying cause; and seamen already affected with it may conceal the protrusion for the purpose of being afterwards discharged, when they have obtained what is termed a smart-ticket. More frequently, however, it is urged as a plea of exemption from the king's service, by seamen who prefer a merchant ship to a man of war. Of this specimen of simulation Mr Hutchison relates a very excellent instance, which also demonstrates a singular physiological fact, that the cremaster muscles in some individuals are under the influence of the will.

An English seaman, found in a merchant ship, was impressed on board the Druid during a cruise off the island of Madeira. He contended that he was unfit for service, on the plea of being ruptured in both groins, as had been ascertained by repeated examination by the surgeons of different ships of war. Mr Hutchison indeed found a swelling in each groin, but he also found the scrotum, which was pendent and flaccid, quite empty; and of course had no difficulty in deciding on the nature of the supposed hernial tumours.

> "As soon as this discovery was made, the poor man, from being at length and so unexpectedly detected, became quite unnerved, and so agitated, that, upon re-examining the parts, the testes were found to have descended into their proper places in the scrotum. After commending the man for his ingenuity, and, in place of physic, administering to him a glass of grog, his spirits were rapidly restored; and, seeing no longer any chance of eluding the king's service, he displayed before us several remarkable feats of the power he possessed over these organs. He pulled both testes from the bottom of the scrotum up to the external abdominal rings, with considerable force, and again dropped them into their proper places, with incredible facility. He then pulled up one testis, and after some pause the other followed, as the word of command was given; he then let them both drop into the scrotum simultaneously. He also pulled one gradually up, whilst the other was as gently descending; and he repeated this latter experiment as rapidly as the eye could well follow the elevation and descent of the organs, so that my assistant and myself were not only surprised, but so exceedingly amused, that we could hardly believe the evidence of our senses. This man afterwards proved to be a willing and hard-working man." Pp. 187, 188.

It might be supposed that these mortifying instances of pretence and dissimulation were confined chiefly to the lower ranks of those engaged in the naval service. They are so indeed. But truth compels us with equal pain and regret to remark, that instances of the same description occur, even among those whom rank, education, and moral responsibility, ought to place far above all deception of this kind. The naval surgeon is not unfrequently called upon to examine officers, who, in consequence of some disagreement with their captain and messmates, present themselves for admission into naval hospitals in order to be removed from their ship. The individual in this case most generally complains that he labours under stricture; and sometimes the complaint may be well-founded. When it is not, the truth may, in most cases, be ascertained by the surgeon introducing a bougie to the strictured point of the urethra, when, if it is stopped by an effort of the will, the patient's attention is to be gradually and insensibly engaged in the history of his service, the ships, the climates the cruises and engagements in which he has served, the names of his respective captains, the part of the country from which he comes, and all those topics which are likely to wean his mind either from the subject of his application, or from the circumstances which gave rise to it. By managing in this manner, a case of simulated stricture may be detected, says Mr H., " nine times out of ten;" and no sooner is the true state of the urethra discovered, than the patient himself admits it, but nevertheless palliates his fault by alleging disagreement in the ship, which, unless he had used the plea of bad health, might have terminated in a court-martial, and the probable loss of his commission. The situation of the hospital surgeon is in such circumstances exceedingly delicate and trying; yet, as the pledged and conscientious servant of the public, he must pursue the straight line of duty, even at risk of causing evil or inconvenience to an individual.

The fourth chapter, on *hospital gangrene and the sloughing phagedenic ulcer which occurs on board ships of war and in naval and military hospitals,* is entirely new. According to the experience of Mr Hutchison, hospital gangrene never attacks the sound skin, but appears uniformly either in an old ulcer, an inflamed pimple, or on a surface which has been in some manner wounded or abraded; and even the point so injured may be incredibly small. When it attacks an open sore or suppurating wound, the healthy secretion of purulent matter is first greatly lessened; a thin, acrid, generally dark-coloured fluid appears in its place; the surface of the ulcer becomes pale and glassy, and the cuticle of the edges is detached from the skin, as if by the action of a blister or the operation of scalding water. When a recent wound or abraded surface is attacked with hospital gangrene, the cuticle becomes quickly elevated in the form of a pale vesicle, surrounded by a dark red circular margin, so as to resemble in some sense the vaccine vesicle, but differing from it in being greatly more violent, more extensive, and attended with infinitely more pain, tension, and swelling of the neighbouring parts.

In the course of a day or two, the sore or wounded surface is occupied with a circular slough, of a dark brown colour, and a glairy or slimy consistence, and emitting a sour and heavy odour; the edges are pectinated or jagged, and bluish-purple in colour; and the parts are the seat of much scalding heat and stinging pain.

Mr Hutchison has never known hospital gangrene to be preceded by fever; but when it has once invaded a part, the skin becomes hot and dry, the pulse quick and full, and more or less delirium comes on. If suitable means are not employed to arrest the disease and counteract its effects, it either terminates fatally, or in the loss of a limb, an eye, or of other parts in which the inflammation was seated. The general correctness of this description is illustrated by several good cases.

For the purpose of pointing out the most successful mode of treating this disease, the author adduces the reports of various navy surgeons, and takes a view of the measures found efficacious by Dr Gillespie, Dr Hennen, Mr Blackadder, and others. The general result may be stated to be, in the first place, removal to a place where the air is pure and uninfected; secondly, antiphlogistic measures by the lancet, emetics, and purgatives; and, thirdly, such local applications as, with cleanliness of the sores, are known to abate inflammation, and change the unhealthy action.

The essay is concluded with a translation of the report of MM. Portal and Deschamps, on the *Mémoire* of M. Delpech, on the moist or hospital gangrene; and some judicious observations on the treatment of ulcers, by the application of adhesive straps. We acknowledge that, although we were aware that bark was often supplied to ships with a needless and expensive profusion, we have only at present learnt, from the observations of Mr Hutchison, that the article of adhesive plaster, in many situations by far the most indispensable of the surgical chest, is distributed with most penurious and ill-judged parsimony. It is a fact which will scarcely in the present day be credited by surgeons in civil life, that our little squadron, after the sanguinary battle of Algiers, had actually to sail to Gibraltar before they got a supply of this article, which was then furnished to them with great kindness and liberality by the army medical officers of the garrison. We may be allowed to express our hope, that the commissioners of the navy have long ere this, taken decisive steps to secure a regular and abundant supply of an article so necessary in the treatment of the wounds, sores, and injuries, attendant on a maritime and warlike life.

The fifth chapter, containing *observations on imperforate anus*, is also entirely new. This imperfection is to be remedied by operation only; and Mr Hutchison recommends and practises the following. The infant being placed on a table, in the same position as in the lateral operation for stone, the surgeon sitting on a chair before the patient, with his right knee on the floor, should make an incision with a small double-edged scalpel, nearly an inch and a half in length, in the direction of the raphe, and upon the situation of the natural anus, taking care to cut upwards and backwards towards the sacrum, to avoid injuring the bladder of the male, or uterus of the female. After cutting to the depth of about an inch and a half, which will be as deep as can safely be done with the scalpel, if there is no appearance of meconium, the point of a middle-sized common trocar should be introduced at the bottom of the wound, and carried gently upwards and backwards towards the hollow of the sacrum, until the surgeon thinks, from the want of resistance, that he has penetrated the gut. This will appear from the contents of the bowels following the stilette, when it is withdrawn. If no meconium, however, escapes through the canula, the stilette must be again introduced, and the triangular point carried farther upwards, as far as is consistent with safety. When the stilette is withdrawn, meconium will in all probability follow.

When this desirable object has been effected, Mr Hutchison strongly inculcates the necessity of retaining the canula secured in the wound, by means of tapes and a napkin, for several days; and he justly ascribes the frequent failure of the operation to the neglect of the rule now delivered.

With the same view, when the canula has remained some days, he recommends its removal by passing through it a hollow elastic bougie, as large as it will admit; and subsequently the use of a larger form of the same instrument, or of a solid bougie, when the hollow one is no longer necessary. Sponge-tent, both old and recently made, he has found to injure by the irritation which they caused.

The advantage of these measures is forcibly illustrated by Mr Hutchison, in the circumstances of four cases which fell under his observation at the Westminster General Dispensary. In all, the operation was performed with success. In the fourth and last, however, owing to improper management and neglect on the part of the mother, an attack of intestinal disorder was allowed to proceed to a fatal termination, when the child was fully ten months old. The urine of this child had occasionally betrayed a feculent tinge; and dissection showed a small valvular aperture in the urethra, about the eighth of an inch anterior to the *caput gallinaginis*, barely sufficient to admit the end of a probe, and communicating with the rectum. In other respects, the artificial anus was perfectly well formed, and properly situate. The omentum was wanting. The principal morbid appearance, however, was slight inflammation of the villous membrane of the transverse arch and sigmoid flexure of the colon. It is also a curious fact, which merits the attention of the observer of malformation, that the rectum was on the right side, and that, though the *levatores ani* were perfect and strong, the sphincter muscle was entirely wanting.

The chapter is concluded with an account of a case in which the operation was performed, but without success. Dissection showed that the gut was grazed only by the cutting instrument, whereas if it had been penetrated, the infant had every chance of surviving. The rectum in this, as in the other case, was situate towards the right side of the pelvis, from which Mr Hutchison justly infers, that in the majority of cases of this malformation, the same result is to be expected. In drawing the practical inference in this case, we do not entirely agree with the author. It is certainly proper to make the external incision pretty well forwards; but we think when the trocar, or any other puncturing instrument is requisite, the most likely mode to get into the cavity of the rectum will be, not by pointing it forwards, but somewhat obliquely towards the right side.

In the sixth chapter, entitled *cases of disease of the brain, produced by external violence, and their consequences*, we find three favourable and two fatal cases, with dissection. The most curious, and perhaps the most instructive of the favourable cases is the celebrated one of Thomas Jones, the seaman, who lay for a whole year without any marks of sensibility or consciousness, partly in the naval hospital at Minorca, partly at Gibraltar, on the voyage homeward, and afterwards in the hospital at Deptford. His history, which is scattered through about half a dozen of letters, or official reports, may be stated in the following order.

Thomas Jones, ordinary seaman of the Santa Theresa, aged twenty-two, was attacked on the 9th June 1799 with total privation of sense and loss of speech. The pulse being full, Mr Goodwin, surgeon of the vessel, took eighteen ounces of blood from the arm, and gave a brisk aperient draught, which was followed by three or four evacuations. Mr Goodwin learnt from one of his messmates, that about four years before he had sustained a severe injury of the head; but that no bad symptoms had occurred till now. Two or three depressions were found on the scull, one very deep; and pressure on this part evidently gave great pain. Medicines of an antispasmodic nature were prescribed; but he continued in the same state for three weeks, when Mr Goodwin, inferring that the brain was compressed, determined on using the trephine.

The vessel, however, having sailed to Minorca, the surgeon of the Queen Charlotte, who now saw the man in consultation, gave it as his opinion, that he laboured under a modification of *chorea*, but agreed in thinking him an object for the hospital, to which he was accordingly sent on the 9th July. He continued here a short time, with much the same symptoms, when the inspector for the time, regarding the disease as feigned, discharged the man on the 1st of August on board the hospital ship Dolphin. Mr Gardner, the surgeon to this vessel, inferred, from the convulsions which took place when pressure was applied to the head, that the brain was compressed; but, out of delicacy and deference to the opinion of the inspector, he did not choose to apply the trephine.

Jones appears to have now proceeded in the Dolphin Hospital ship to Gibraltar; for a seaman who accompanied him from that station, reported, that they left it for England about the end of September. He arrived at Deptford in December, when he was put under the care of Mr Baildon, surgeon of sick and wounded seamen; and he continued under his care till the 9th May 1800, when he was admitted into St Thomas's Hospital in a state of complete insensibility. Near the summit of his scull a portion of bone, about two inches long, and one broad, was found deeply depressed. Mr Cline removed this by operation; and the next day the man heard, saw, and spoke, but his recollection was for some time very imperfect. When he recovered his faculties, he stated, that he remembered nothing from the time when he was in the Santa Teresa off the island of Minorca, till he found himself in the hospital of St Thomas, after being trepanned.

The seventh chapter consists of the essay on the *infrequency of urinary calculi among seafaring people*, which is already before the public through the medium of the Medico-Chirurgical Transactions of London. It contains a few additional facts collected by the author since its first communication to the society.

As a sort of appendix, there are two cases of cystotomy by high operation;—the first for extraction of a large calculus two inches long, and one and a half broad;—the second for removing a collection of bloody clots which had escaped from fungoid tumours of the prostate gland. The first, which was in a young man of twenty, was completely successful; the second, in an old gentleman of seventy-three, terminated fatally. Both cases are interesting, and will be studied with advantage by the practical surgeon.

The other additions to be here noticed are two cases of Taliacotian operation, with remarks; a few observations on the removal of atheromatous or melicerous tumours; and some additional remarks, with another case in the article on necrosis.

One of the cases of Taliacotian operation is already described in the fourteenth volume of this Journal (p. 344.) The second was performed in the year 1819, on the person of a man who had lost great part of his nose from syphilis some years before. The operation, which took place in the anatomical theatre of Mr Brookes, in the presence of nearly 300 gentlemen, some of the highest rank and talent in the profession, was performed, as in the former case, after the manner of Mr Carpue, and was completed with the greatest success.

In the article on *Necrosis*, we find some observations on the rarity, or rather impossibility, of bony union in fractures of the patella, the olecranon, and the neck of the thigh-bone. Mr Hutchison, in the first place, denies the fact of bony union in fractures of these several bones; and, secondly, he ascribes this deficiency to the want of periosteum, which, he contends, is the great agent of ossification. He dissected the capsular ligament of the hip-joint in several subjects after maceration, and succeeded in tracing the lining or synovial membrane of that ligamentous bag, fully half the distance between its insertion, near the trochanter and the head of the bone; and in each, he concluded that this was the *only membrane* which covered the whole extent of the neck of the thigh-bone. When this same membrane, that is, the reflected part of the capsular ligament, was again submitted to maceration, and when it was attempted in this state to split it into layers, with the view of demonstrating something like periosteum, no such result was obtained; and Mr Hutchison, therefore, concludes, that no periosteum, properly so called, covers any part of the neck of the bone within the capsular ligament.

When this fact is once established, its application, according to the view which Mr Hutchison takes of the influence of the periosteum in effecting ossification, is obvious. In most, if not all the instances, of fractured knee-pan which he has witnessed, the union, he contends, was not osseous, but gelatinous; and such, he conjectures, takes place in longitudinal fractures, cracks, or fissures of the neck of the thigh-bone. He therefore infers, on the evidence of analogy, that whatever union takes place in the broken neck of the thigh-bone, must, in consequence of the want of the periosteum, the great agent of ossification, be of the same gelatinous description; and he concedes to Sir Astley Cooper the merit of correctness in the opinion which he maintains on this contested point of surgical pathology, but does not admit the sufficiency of the reasons assigned by the learned baronet.

It cannot be denied that the doctrine here maintained by Mr Hutchison is highly plausible, and has not hitherto received that degree of attention to which, perhaps, it is entitled. It receives, we may observe, a strong degree of corroboration from the fact invariably remarked in necrosis,—that, when new bone is formed round the old, this new formation takes place in the shaft or cylinder only between the epiphyses, which are not renewed, but with the tendons, ligaments, and articular capsules are transferred to the new osseous cylinder. This seems to demonstrate an indisposition, if it may be so named, to bony deposite in the extremities of bones, after they have once received their portion of this secretion during the original growth of the skeleton. But whether this holds invariably in all cases of fracture of these extremities, or is to be modified by the admission of certain exceptions, are points which can be determined only by future observation.

The sketch which we have now given of the various subjects embraced in this volume, will probably satisfy our readers of the merit of the author as a practical surgeon and useful writer. The manner in which he treats them affords ample testimony that he has not allowed his experience to pass before his eyes in the indifferent and profitless manner, which is too often to be regretted in those who have been much engaged in the active duties of the profession. We have no hesitation in saying, that his writings bear marks not only of habits of accurate observation, but of very considerable talents for depth of reflection and originality of inquiry; and as such, they may be recommended both as sources of information, and as examples of the useful practical form of instruction.

ART. XIV.—1. *Mémoires sur l'Acupuncture, &c. Essays on Acupuncture, a new and efficacious remedy for Gout, Rheumatism, and nervous affections.* By the Chevalier SARLANDIERE, M. D. &c. Paris, 1825.

2. *Notice sur l'Acupuncture, &c. Account of the History, Effects, and Theory of Acupuncture, from Experiments made in the Hospital of St Louis.* By Professor PELLETAN junior. [*Révue Médicale, Janvier* 1825.]

3. *Note sur les Phénomènes, &c. On the Electro-magnetic*

Phenomena developed during Acupuncture. By M. POUILLET. [*Journal de Physiologie, Janvier* 1825.]

4. *Saggio sul Agopuntura, &c. An Essay on Acupuncture.* By DR ANTONIO CARRARO, Physician of Piove di Sacco. [*Annali Universali di Medicina, Luglio* 1825.]
5. *Traité de l'Acupuncture, &c. Treatise on Acupuncture, composed from the Observations of M. Jules Cloquet, and published under his inspection.* By M. DANTU DE VANNES, M. D. Paris, 1826.

THOSE of our readers who have perused the essay of Mr Churchill on acupuncture and his papers in the London Medical Repository, and who are aware that investigations have been lately made on the same subject in various parts of the Continent, may be surprised that hitherto no notice has been taken of it in this Journal. Our reason has been, that the first accounts given of the virtues of the new remedy were so marvellous, and therefore seemed to savour so much of quackery, that, coming, as they did, from persons not of the highest authority, we could not but follow the general example, and decline giving implicit credit to their assertions. But these assertions have been re-echoed from almost every quarter of Europe; observations have been made on the subject at many continental schools of eminence; the several accounts given by unconnected writers agree very remarkably in every essential particular; the alleged facts have at length been put to the test of a full and minute train of experiments by one of the most scientific of the Parisian physicians, in a great public hospital, and under the eyes of its pupils; the results of these experiments, as published by his hospital assistants, harmonize exactly with the statements made by those who introduced the remedy into Europe; and under such circumstances we cannot any longer delay presenting a summary of the interesting information which has been accumulated in its favour.

It must be confessed, however, that after all we cannot approach this singular topic without hesitation. It is true, that, in the hands of M. Cloquet, the remedial virtues of acupuncture have passed triumphantly through an ordeal, to which no remedy, whose claims were false, could be submitted without detection. But, at the same time, the utmost ingenuity of its favourers has been unable to discover, in a long course of minute inquires, any rational way of accounting for its effects; and, what is perhaps of more consequence, they have been unable to detect any physiological change or phenomenon co-ordinate with its operation. There is in short a total want of every sort of evidence in its favour as a remedy, except that most treacherous kind, the evidence of succession; and consequently, a philosophical mind, especially considering the diseases in which the greatest success has been obtained, will naturally feel inclined to attribute the cures which have been accomplished to the influence of the imagination, and to sentence acupuncture to banishment from regular practice, as being nothing else than a variety of animal magnetism.

This, however, is not the proper place for discussing the question of evidence. It may be sufficient to mention at present, that an impartial examiner can scarcely study the documents at the head of this article, without coming to the conclusion, that acupuncture has proved a powerful remedy in a very great proportion of cases of neuralgia, of rheumatism without fever, and of muscular spasm,—that it has also appeared to cure some cases of palsy, a few cases of gout, several cases of chronic ophthalmy, pleurisy and erysipelas,—and that it has removed the pain accompanying contusions and sprains and some internal organic disorders. Having announced these general results, we shall proceed to give an account of its history,—of the instruments and the mode of using them,—of the phenomena observed when the needles are introduced into the body in a state of health and in a state of disease,—of the mode in which they have been supposed to operate in effecting a cure;—and we shall then annex an abstract of some of the cases which illustrate their operation in various diseases.

1. All writers who have entered into the history of acupuncture agree in referring its origin to the Chinese and Japanese. It appears from various short notices published at different times during last century by Kaempfer, Dujardin, and others, but more particularly from a treatise printed at London in 1683 by Ten-Rhyne, a Dutch physician, and from the translation of a curious Japanese manuscript in the work of the Chevalier Sarlandière, that acupuncturation has been known in those two countries almost immemorially. It is applied to all manner of maladies; but those in which it is accounted most applicable and is in reality most successful, are evidently such as do not belong to the active inflammatory disorders. In Japan it is held in as great repute as blood-letting is in Europe; and the confidence of the physicians of that country in its virtues seems never to have been shaken. Of such importance indeed is it reckoned, that the chief part of a medical man's education there consists in learning the precise position on the body of the 337 spots into which the needles may be inserted, and the several parts of the body into which they should be introduced in each disease. These are taught on a statue pierced with the proper holes and covered for the occasion with paper; and no one is considered qualified to practise the art who has not un-

dergone a course of study in practical needling for a term of six years.

The first perfect account of the process of acupuncturation which appeared in Europe was that of Ten-Rhyne. But although he has been so full on the subject, that the writers of the succeeding century, who have made allusion to it, have added little or nothing to our information, it does not appear to have ever received much notice from practitioners till within the last twelve years. The merit of having brought it under their serious attention in recent times must be divided, as very often happens with neglected discoveries, among several individuals. The first person, however, in the present century, who employed acupuncturation in actual practice, and gave the results to the public, was a French physician M. Berlioz,—who in 1811 sent a memoir upon it to the Parisian Society of Medicine, and after being treated by that learned body as a rash experimentalist, had nevertheless the courage to publish the essay in 1816. Among the cases in which he used it successfully are one of protracted nervous fever, one of convulsive cough, and one of general contusions of the back caused by a fall.

It is to no purpose therefore that the Chevalier Sarlandière attacks M. Cloquet for the omission of his name in the occasional sketches and memorandums published by the pupils of that gentleman under his sanction,—and claims for himself the merit of having been the first to recommend the remedy in modern times. That merit, such as it is, belongs to M. Berlioz; for his essay was in print at the time when the Chevalier was only occupied with his researches. But it is to M. Cloquet alone that the credit is due of having first instituted a series of experiments of sufficient extent to permit the practitioner to make up his mind regarding the real merits of the practice. This he was enabled to do by reason of his situation as one of the physicians to the great hospital of St Louis, to which patients with neuralgia and rheumatism repair in crowds for the sake of the baths attached to the establishment. The work of his pupil Dantu and the memoir of his friend Pelletan being the most complete and circumstantial which have yet appeared, we shall avail ourselves chiefly of them in the subsequent exposition. It is proper, however, to add to this short historical sketch, that besides the papers of Berlioz and Sarlandière and the works at the head of this review, several papers on acupuncture have been inserted in the French and Italian Journals by other writers, that in 1821 a very interesting pamphlet was published on it in London by Mr Churchill, and that several brief notices have since appeared in the London Journals illustrating its application to special diseases. We shall have occasion to make use of most of these treatises in the subsequent details. It should likewise be added, that M. Cloquet was the first who taught the frequent necessity of leaving the needles for an hour and upwards in the body, physicians before him having seldom allowed them to remain above five or six minutes ; and that the first who thought of increasing their energy by applying electricity and galvanism to them was M. Berlioz.

2. The instrument employed in the operation of acupuncture is a needle of various lengths and with various appurtenances according to the precise object of the operator, and the method in which he prefers to insert it. When the disease for which it is to be used is not deep-seated, nothing more is required than a fine sewing-needle, with a thread drawn through the eye to prevent it from slipping altogether under the skin, and a knob of wax fastened over the same end to facilitate its introduction by pressure with the finger. When needles of greater length are required, as for reaching parts two or three inches under the surface, it is necessary to prevent the risk of their breaking in the body, by reducing the temper of the steel after they are pointed; and in order to facilitate their introduction, it is of use to fix the needle to a little cylinder of larger diameter, by which it may be turned between the middle-finger and thumb,—and to make the cylinder terminate in a flat head on which pressure may be applied with the fore-finger. A little hole may be drilled in the rim of the head, for attaching an electric conductor, according to the plan recommended by Cloquet and by Sarlandière. This is a description of the instrument as made for us here according to a pattern given in the paper of Carraro. It combines the conveniences of all the rest. It must be exceedingly fine; even the three-inch needle in only one-fortieth of an inch in diameter immediately under the cylindrical handle. The pointing must be executed with great care, so that no part of the needle shall be angular, particularly near the point. Those used by M. Cloquet are made of steel. The Chevalier Sarlandière prefers gold and silver, because the Japanese prefer those metals; but the needles of gold or silver are necessarily thicker and less delicate in the point than those of steel, and do not possess any advantage over them.

The method of introducing them is exceedingly simple. The skin being drawn tight between the thumb and fore-finger of the left hand, the instrument, held between the thumb and middle-finger of the right hand, and pressed by the fore-finger on the head, is slowly and steadily introduced at right angles through the skin to the depth required. Such is the mode which is recommended by Cloquet, and which we have found to be the easiest both to the physician and to the patient. Some, however, prefer giving the instrument a rotatory or screwing motion after it has pierced through the skin; and M. Sarlandière advises the operator to introduce it through a short piece of glass tube, which may be useful as a support and director if the needle is made of gold or silver, and likewise as an insulator when the electric fluid is to be transmitted through the needle. When the instrument is to be left long in the body, it is best to use a sewing needle, fitted up as we have already mentioned; and it must be inserted as far as the wax head, and covered with adhesive plaster to secure it against the friction of the clothes. The most convenient conductor for applying electricity to the needle is a fine silver wire.

3. The next object of attention regards the immediate phenomena produced by the operation on the body in a state of health and in a state of disease. We shall detail them pretty fully, as it is from the sensible phenomena which accompany the cure, rather than from the mere cure itself, that the mode of action and the reality of action of such a remedy are to be determined.

Every body has witnessed the school-boy trick of thrusting needles and pins into the arm; and every practitioner knows, that hundreds of needles have made their way from the stomach, through almost every part of the body, without causing inconvenience. But these phenomena have been generally ascribed to peculiar insensibility; and very few will believe,—what, however, is the actual fact,—that a finely-pointed and taper needle may be thrust deep into the fleshy parts of the body of every person, without any sensation being produced which can in correct language be called pain. Encouraged by the assertions of our authors, we have repeatedly made the experiment, and certainly the sole sensations produced are an exceedingly faint impression of pain while the needle passes through the skin, and a sense of slight numbness or pressure while it afterwards passes through the muscles. Nor does any pain in general follow its extraction, even when it has been allowed to remain long in the body. Sometimes, however, its extraction in such circumstances is painful; and when it has been frequently introduced in the same neighbourhood, a general soreness is left for a day or two.

M. Dantu has farther remarked, that when it is left sticking for an hour, a faint rose-red areola forms around; but that this phenomenon is not so constant as in the case of disease. On the needle being withdrawn after remaining for an hour and a half, he has always found it stained with several detached, narrow, blue rings, like what are caused by low tempering,—an effect which is never produced on needles inserted into the dead body, but is caused much more remarkably in the living body when the part into which the needle is introduced is the seat of neuralgia or of muscular spasm.

The aperture left after the needle is withdrawn closes almost immediately, and in a few minutes can hardly be distinguished at all. Sometimes a small drop of blood follows it, but hardly ever more than a drop. This appeared a very striking fact to the first experimenters, and led them to infer, that, as small arteries must be often punctured, the puncture of them was not attended with any harm. Accordingly Beclard found by experiments on animals, that if the femoral artery was punctured, only a small quantity of blood was effused into the sheath and was speedily absorbed again; and that the same operation might be performed with the same result even after the artery was stripped of its cellular sheath. The radial and temporal arteries have also been punctured in man; and a momentary jet and a slight ecchymosis were the sole consequences.

Neither does it appear that puncture of the nerves is attended with any bad result. "Among more than 1200 acupuncturations, says Dantu, I have not once seen it necessary to withdraw the needle on account of its causing that acute pain, which we know is produced by the ordinary pricking of a nerve; and yet it is certain that nerves must often have been transfixed." The reason is, that the gentle separation of the fibres caused by the acupuncture needle bears no relation whatever, as a disturbing agent, to the rude tearing and cutting occasioned by a common prick. And in fact, Dantu has repeatedly satisfied himself, that in the lower animals, the brain, spinal cord, and nerves may be acupunctured, without causing any annoyance at all.

In like manner it is certain, that the great cavities and the viscera contained in them may be pierced without injury. M. Haime, in an article on acupuncture in the thirteenth volume of the *Journal Universel*, says that M. Bretonneau of Tours has pierced the bodies of puppies in all directions,—through the brain, heart, lungs, and stomach,—without observing any bad result. Carraro, as will be mentioned hereafter, remarked the same thing with respect to the heart, in the course of some experiments on the application of acupuncture to the treatment of asphyxia. Dantu tells us that, judging from the depth of the punctures, his master Cloquet must often have pierced the lungs, stomach, and intestines in man, and that he has actually often pierced the liver, and sometimes the testicle,—and always without injury. M. Pelletan has also repeatedly seen the cavities of the chest and belly pierced deeply, without any bad consequence. And we shall hereafter notice a case in which the operation was performed without harm upon the heart in a patient affected with carditis.

Farther, it is a remarkable circumstance that the acupuncture needles never cause inflammation in their neighbourhood. If they are rudely handled, or ruffled by the clothes of the patient, they may produce a little irritation. But if they are properly secured and protected, they may be left in the body for an indefinite length of time without causing any of the effects which usually arise from the presence of foreign bodies. In one of M. Cloquet's patients they were left in the temples for eighteen days; and in cases in which needles have been swallowed, they have remained without causing inflammation for a much longer period. It appears probable from the facts collected on the subject, that metallic bodies of every kind may remain imbedded in the animal tissues without being productive of injury; and that the property of irritating and inflaming by mechanical contact belongs only to those bodies which are non-conductors of electricity. But farther experiments are required to substantiate this curious and important law.

In regard to the accidents arising from acupuncture, it is only necessary to add, that in a few cases the operation has been followed by a tendency to fainting, and that in one instance, which occurred at the Hotel-Dieu of Paris, the accidental disappearance of the needles in the skin of the belly was followed by such extreme and uncontrollable terror, that the patient expired soon after. It is very much to be regretted, that this solitary fact embraces all the information which our authors have thought proper to give, regarding the influence of the remedy on the mind. That the introduction of three-inch needles into the skin must be generally attended with considerable trepidation and anxiety on the part of the patient, is exceedingly probable. At the same time there are many on whom it would have no such effect, and a little precise information on the relative success of the treatment under these and other analogous circumstances, might go far to determine what truth there is in the conjecture, to which one is naturally apt to be led, and which (strange though it may seem,) has hardly been started, and not at all investigated in any of the treatises before us,—that acupuncture belongs to the class of remedies which act through the medium of emotions of the mind.

Having mentioned the physiological effects caused by the introduction of the needle into the body in a state of health, we should now proceed to notice certain physical phenomena of great interest. But as these are much more distinct, or properly speaking, have been much more minutely examined in cases in which the place of insertion was the seat of pain, we shall first describe the physiological phenomena produced when the body is in a state of disease.

When the part into which the needle is inserted is the seat of pain, the sensations produced by its introduction are even less distinct than in the healthy body. In a few rare cases, however, it has caused acute pricking pain. It appears that the red areola is both more invariable and larger than in the healthy body. Sometimes it covers a surface of two inches. It generally begins to form in less than six minutes, but not unfrequently is retarded for half an hour; and when the needle is left long in the body, it disappears again in a few hours.

The most striking physiological phenomenon is the cessation of pain. In cases of neuralgia and rheumatism most particularly, but likewise very remarkably in recent contusions and sprains, and even also in many cases of organic disease, the insertion of the needle is followed sooner or later by a remission or total cessation of pain. This sometimes takes place during the very act of insertion; but much more commonly not for five or six minutes, sometimes not for half an hour or even more than an hour, occasionally not for several hours or days; and in a few cases even of pure neuralgia, no relief whatever was procured by allowing the needles to continue many days in the pained part. Sometimes the pain is removed permanently by one operation, or, if it returns, by the second or the third. In many cases, if it ceases suddenly and early, it shifts to a part adjoining; but when it does, a second needle removes it thence also, without its being liable to return to its original seat. Frequently, instead of being removed, it is only alleviated; and an important fact, of which some use will be made by and bye, is, that in such cases the relief obtained diminishes with the frequency with which the operation is repeated. In a few instances the pain has been increased instead of being diminished immediately after the operation, but in several of these it has abated afterwards and disappeared. The departure of the pain is often accompanied with peculiar sensations, such as a feeling of coldness creeping over the pained part, or a feeling of warmth, or a sense of numbness; and the patient generally describes the pain as tending towards the point of the needle, and concentrating itself there before it ceases. Pelletan says the departure of the pain is always followed by numbness. The removal or relief of pain has been procured in innumerable instances in which every other remedy had been tried assiduously and in vain; and in a great majority even of obstinate cases the cure has been permanent.

Another phenomenon of the same nature as the cessation of pain is the cessation of muscular spasm. The disappearance of the contraction seems to follow nearly the same course as the departure of pain, sometimes taking place rapidly and soon, at other times gradually and not till after a considerable interval.

We have lastly to relate the physical phenomena which accompany the introduction of the needles, and the first we shall notice is their oxidation. It has been already mentioned that the steel needles, if allowed to remain some time in the healthy body, acquire a blue colour; which arises from a film of oxide being formed on their surface. This effect is said to be more distinct when the part which is punctured is the seat of pain; and in some instances the oxidation has been very considerable. It does not depend on vitality, for Dantu found that it was produced by dead muscle, if kept at a temperature about 90° Fahr. It is generally arranged in detached rings, but sometimes covers the whole needle.

Another very interesting fact, first taken notice of by M. Cloquet, is the passage of electricity along the needles during their stay in the body. He one day thought he felt a slight sense of numbness and tendency to contraction in the fingers and arm, when he took hold of the needle; and the same thing having been subsequently observed by others, he was led in consequence to try whether the galvanometer indicated the transmission of an electric current. Several experiments were accordingly made by Pelletan, Dantu, and more particularly by M. Pouillet, and the general results are,—that when the galvanic circle is completed by connecting one pole of a delicate galvanometer with the needle, and the other pole with the patient's mouth, the needle of the galvanometer is evidently deflected,—that this howerer, is observed in the healthy body as well as in the case of disease,—that it occurs only when the acupuncture needle is of steel and becomes oxidated during the experiment, and is not observed at all when the needle is made of gold, silver, or platinum,—and consequently, that it is connected with the chemical process of oxidation, and does not arise, as was at first naturally imagined, from the transmission along the needle of electricity previously accumulated in the spot by a morbid process.

When an attempt is made to trace what relation subsists between the various physical and physiological phenomena now mentioned, it is found, that the rapidity or perfection of the cure bears no reference either to the extent or time of appearance of the red areola, or to the sensations felt at the moment of the introduction of the needles or soon afterwards, or to the occurrence or degree of oxidation, or to the transmission of the electric current.

4. Such is a general account of the facts yet collected,

which throw light on the cause of the therapeutic effects of this remedy. It must be confessed that they leave the pathologist very much in the dark, and render it difficult for him to form even a conjectural opinion. But on the whole, they tend to show, either that it operates through the mind, or that it acts by withdrawing a morbid accumulation, or rectifying an aberration of the nervous fluid. This curious topic, however, as well as the more practical and important one of the diseases in which acupuncture has been chiefly found useful, must be reserved till the next number.

ART. XV.—*Experimental Researches on the Influence Exercised by Atmospheric Pressure upon the Progression of the Blood in the Veins, upon that function called Absorption, and upon the Prevention and Cure of the Symptoms caused by the Bites of Rabid or Venomous Animals. With an Appendix, containing the Original Reports of Baron Cuvier, and of Professors Dumeril and Laennec, to the Royal Institute of France, and to the Royal Academy of Medicine of Paris, &c. &c.* By DAVID BARRY, M. D. Knight of the Order of the Tower and Sword; Member of the Royal College of Physicians in London; First Surgeon to the Portuguese Army; Surgeon to the Forces, &c. &c. London, Printed for Thomas and George Underwood, 32, Fleet Street. 1826.

THE inquiry into the phenomena of the circular motion of the blood, and into the nature of the agents concerned in it, has at all times engrossed a large proportion of the attention of the experimental physiologist; and few subjects in the whole range of the science of living bodies can be said to be better understood, or more fully ascertained. The great leading facts of the theory, so far as relates to the impellent power of the heart, and to the direction in which the blood flows through large vessels and distinct trunks, were established by the immortal author of the discovery in such a clear and indisputable manner, that succeeding inquirers did little more than verify his proofs—confirm his arguments—and throw light on his conclusions. The peculiarities of the circulation in the smaller vessels were investigated by the research and experiments of Verschuir, Lamure, Hales, and especially of Haller, and more recently by Spallanzani and Fontana. Lastly, the principal facts relating to the circulation were generalized by Bichat and Magendie in France, and by Carson in this country, with such modifications and corrections as further inquiry seemed to demand.

Notwithstanding the advanced state, however, to which the labours of these ingenious men brought the doctrine of the circulation, one point still remained either entirely unascertained, or was suffered to rest on the unstable foundation of hypothesis and conjecture. The mechanism of the motion of the blood through the veins, and the nature of the agents concerned in its propulsion, were almost unknown, or were so imperfectly and so variously explained, that the operation of the alleged causes might be justly admitted to be either very obscure or utterly unintelligible. Harvey, for example, in whose eyes the heart was the principal, if not the sole agent of propulsion, supposed the impellent action of this organ, and of the arteries, to be continued through the venous capillaries by the pressure exercised upon them at their anastomotic connexions with the arteries; and this, under the name of *vis a tergo*, has been admitted to a very general extent by most subsequent physiologists. This opinion has been satisfactorily refuted, first by Bichat (428,) and more recently by Carson (53,) and by Black. Haller again, who justly denied the active power of the heart, as maintained by Leeuwenhoeck and Hales, regarded the conical figure of the venous system as the principal, and the compressing effort of the muscles as the auxiliary, cause of the progressive motion of the blood from the small veins to the large, and thence to the heart. In modern times, when this doctrine was maintained most generally, and in its greatest perfection, the causes, to which the motion of the blood in the veins has been ascribed, have been one or more of the following. 1st, The alleged insensible contraction of the capillary vessels, (Bichat, 426;) 2dly, An absorbing power ascribed to the minute veins, (Bichat (427,) Magendie,) and believed to be independent of the heart; 3dly, A supposed action of the veins themselves on their contents, (Richerand;) 4thly, The beating of contiguous arteries and their contractile action, whether dependent on muscular or on elastic fibres, (Cullen, Gregory;) and, 5thly, The pressure of the skin, of the muscles of voluntary and involuntary motion, of the viscera, and of the contiguous organs in general, (Cullen, Bichat, Magendie.)

The operation of the first three causes is so very hypothetical, and, if it cannot be entirely questioned, it is at least so uncertain and so unsusceptible of direct demonstration, that it ought not to have a place among the principles of positive science. The influence of the two last is so ambiguous, that it may be safely questioned, whether they would have the effect of propelling the blood from the venous branches to the trunks and to the right auricle, or in the opposite direction from the trunks to the branches. Their influence, admitted in the most ample extent, can never be primary, and may be justly regarded as accessory only.

It was in 1815 that Dr Carson of Liverpool, in his "Inquiry into the causes of the motion of the blood," first pointed out the influence of atmospheric pressure in impelling the blood from the auricles of the heart into the ventricles, and from the venous trunks in connection with the heart into the auricles. He at first, partly by experiment, but principally by a train of reasoning founded on anatomical and physiological considerations, and on the admitted physical properties of the atmospheric air, satisfied himself that the lungs have a resilient or elastic power, in consequence of which they have a tendency to retire from the internal surface of the chest, if the bony structure of this cavity did not prevent them, by not yielding to the pressure of the atmosphere.

Regarding, then, the heart as constituting a part of the boundaries or walls of the chest (p. 116;) and the pericardium as a strong inelastic capsule, incapable of expansion beyond certain limits, yet fitted easily to resist the balance of unequal pressure laid on its internal or concave surface by the retiring tendency of the lungs (p. 117,) Dr Carson inferred, that "a force equal to the weight which the elasticity of the lungs in their ordinary condition during life is capable of supporting, must constantly tend to dilate the heart to the utmost limits of the pericardium, by pressing against the internal surfaces of its chambers;" and as this force must be sustained by the walls of the heart itself, he concluded, that the successive dilatation of the different chambers of the heart after contraction is fully secured by an adequate power;—namely, the uniform and constant operation of atmospheric pressure through the medium of the lungs.

Having in this manner satisfied himself of the mechanism by which the auricles and ventricles are supplied with blood, Dr Carson applied the same views to the venous system generally. The blood in the venous trunks connected with the auricles must, at the moment when a portion of the general weight of the atmosphere is withdrawn by the resiliency of the lungs from the convex surface of the pericardium, and consequently from that of the auricles, be less resisted on the side of the heart than at any other point. The effect of this diminished resistance, again, he argued, is, that the blood in these trunks, according to the usual hydrostatical laws, will tend towards the centre of pressure, or into the auricles, until these chambers have been dilated to such extent as to afford a resistance equal to the resilient power of the lungs; or until the boundaries of the pericardium have admitted a quantity of blood equal to that which is projected from them by the previous contraction of the ventricles. "At each contraction," says Dr Carson, "a quantity of blood is thus pumped out of the venous trunks into the heart;" and this must continue so long as any fluid is found in the veins which open into the auricles.

He subsequently considers the question, how far this pumping operation of the heart extends through the venous system at large; and he infers, that though not the sole, it is a very powerful agent in promoting the venous circulation.

Though these views are not only ingenious, but appear to be intimately accordant with the phenomena of the mutual connection of the functions of respiration and circulation, yet they have been before the scientific world for nearly twelve years, without attracting the attention to which they are entitled. On the continent they are either entirely unknown or much misunderstood; and the only individual who appears to have thought of the influence of atmospheric pressure over the venous circulation is a Dr Zugenbuhler, who in 1815 published a thesis *de motu sanguinis per venas*, and on which he founded a claim of priority to the Academy of Natural Sciences. We have not seen this dissertation, and cannot speak of its merits. But it appears from the report of Baron Cuvier and Professor Dumeril, that the author offered arguments only in support of his opinions;—a reason sufficient certainly to question their truth, but not to deny their originality. It is in all probability to the same want of experimental proof, and consequently to the indistinct mode in which his views were explained and demonstrated, that we are to impute the small share of attention which the arguments and opinions of Dr Carson have yet received. While the originality of Dr Carson, therefore, in first announcing the influence of atmospheric pressure as an agent of the circulation, cannot be denied, it must not be concealed that his theory would have commanded a more general and a less equivocal reception, had it been previously submitted to the infallible test of experimental inquiry.

Such being the state of information regarding this important question in the science of living beings, the inquiry undertaken by Dr Barry must be admitted to be one not only of the highest interest, but of the greatest necessity. In the memoir which forms the first part of the treatise before us, his object is to demonstrate, by proofs drawn from anatomical structure and from direct experiment, the three following facts;—first, The powers by which the blood is propelled through the veins to the heart; secondly, The comparative velocity with which it is moved through the veins and through the arteries; and, thirdly, That the constant supply of blood to the heart cannot depend solely upon the causes to which it has been hitherto ascribed.

In reflecting on the first of these points, the attention of Dr Barry was in the first instance attracted to the mechanical effects of the alternate motions of inspiration and expiration on the blood in the heart and great veins. Though the elasticity of the air, or, in other words, the pressure of the atmosphere, was overlooked by Harvey, and underrated by Haller, it appeared to Dr Barry impossible for the alternate expansion and contraction of the thoracic cavities not to affect the motion of the blood towards the right auricle and pulmonary artery. The air which enters the wind-pipe during the act of inspiration to distend the air-cells, would, he remarked, follow the expanding sides of the chest much more readily, if there were no cells to be distended; and as it is an established law that all fluids, in communication with an enlarging cavity, are impelled towards it, if exposed at the same time to atmospheric influence, he thought it presumable that blood would be forced into the chest through the *cavæ* during inspiration.

This view of the part which respiration might perform in the circulation, particularly of the venous blood, evidently derived strong confirmation from various well-known facts; for example, the swelling of the external jugular veins during *expiration*, and their immediate collapse upon *inspiration;* the venous pulse *(pulsus venosus)* remarked by Haller even in the external iliacs as synchronous with *expiration;* the cessation of certain hemorrhages by forced inspirations; and the absorption of air by the veins, and the fatal accidents that have been known to follow the opening or division of any of the large veins near the heart. The anatomical disposition of the heart, of the pericardium, and of the mediastinal *pleuræ*, and even the construction of the sternum and ribs, appeared also to be destined for some mechanism of the same description. Thus, while the heart is enclosed in the pericardium—a capsule at all times too large for its volume—the latter membrane, by being covered laterally by the mediastinal *pleuræ*, is not only protected from pressure during inspiration, but may be enlarged probably in all its diameters, in consequence of the simultaneous elevation of the ribs, the protrusion of the sternum, and the descent of the diaphragm. Adverting also to the obvious effect of the blood impelled at each ventricular contraction into the pulmonary artery and aorta, in producing a vacuum behind, Dr Barry thought it probable that enough of blood must be brought into the cavity of the chest, to supply the discharging tubes during a complete act of respiration.

His reasonings in this stage of the process, however, were still hypothetical; and Dr Barry proceeded forthwith to ascertain their accuracy by appeal to experiment. If his hypothesis regarding the influence of atmospheric pressure in propelling the venous blood were well-founded, the following results, he concluded, might be anticipated. First, That a fluid, such as water in an open vessel, being, by means of a tube, placed in direct communication with the interior of one of the great veins within the chest of a living animal, would rise in the tube by the atmospheric weight resting on its exposed surface, and that the motion of the fluid would be regulated by the respiratory movements of the animal; and, secondly, That the same phenomena would result upon establishing the same communication between the fluid and any of the cavities around the veins; for instance, the thoracic, pericardiac, or abdominal.

The first of these results Dr Barry verified on the 16th October 1823 in the body of a horse condemned to be destroyed on account of an incurable disease of the hoof, but sound in every other respect. The animal being thrown on the right side, Dr Barry exposed the left jugular vein, tied it below the middle, and, about an inch below the ligature, introduced into its cavity, towards the heart, a large-sized flexible catheter, into the outer end of which a spiral glass tube was fitted. When the catheter was pushed towards the heart, as far as it would go, a ligature, which had been passed under the vein, a little below the opening made to admit the catheter, was firmly knotted round both. The other end of the spiral tube, which Dr Barry had hitherto kept closed, was now immersed in a cup of water, deeply coloured by a solution of common Prussian blue. The moment the end of the tube was opened, the blue liquid rose through the spiral, and flowed rapidly towards the heart. The great length which the liquid was compelled to traverse, by the spiral form of the tube, enabled Dr Barry and his friends to observe its motions towards the heart during *inspiration*, and its cessation and return towards the cup during *expiration*. By the occasional admission also of a few air-bells into the tube, the alternate motions of the fluid between the heart of the animal and the cup were rendered so manifest, that it was impossible to question the agency of the atmospheric pressure.

At first no blood was seen in the tube; but after some time, when a considerable quantity of cold water, and of air, had been forced into the vein, and thence to the heart, so as to render the respiration of the animal hurried and irregular, and otherwise cause much suffering, blood appeared in the tube on two or three occasions during *expiration*. The next inspiration, however, invariably restored the blue liquid to its place.

This experiment repeated several times in different animals, showed, 1*st*, That, though the coloured fluid invariably rose in the tube, even when the animal was standing, its motion was never so distinctly marked as when he was prostrate; 2*dly*, That the connection between the motion of the fluid in the tube, and respiration, is not satisfactorily observed while the horse is standing, because his breathing is then scarcely, if it all perceptible; and, 3*dly*, That, when the respiration became hurried and labouring, though the blood frequently regurgitated through the tube at the moment of *expiration*, the liquid never ascended except at the moment of *inspiration*.

Dr Barry having thus verified by experiment his first conclusion, proceeded to submit the second to the same test.

A metallic tube, one end of which was fixed in a caoutchouc bag, filled with a composition of lard and wax, the other, being pointed like a writing pen,—was thrust through each pleura into the chest of a dog. A small flexible catheter, armed at one end with the barrel of a quill, prepared to act as a valve, was then thrust through the caoutchouc bag and the metal tube into the cavity of the pleura; and when this was completed on each side of the sternum, the outer end of each catheter, which had been hitherto plugged, was attached as before to a spiral glass tube, the opposite end of which was already immersed in a coloured liquid. The communication was no sooner established on each side, than the liquid rose rapidly through the spirals, and flowed into the chest during inspiration, but remained stationary, or fell during expiration. The motions of the fluid were in short so regular, and so completely dependent on those of respiration, that the one might be counted while observing the other. The admission of a few bells of air contributed, as in the former case, to render the alternate ascent and descent of the fluid along the spirals greatly more conspicuous. When the body was opened at the conclusion of the experiment, the ends of the two catheters were found one on each side of the pericardium, between it and the concave surface of the lung, which had not suffered the slightest injury.

By introducing first a pointed metallic tube, and afterwards a flexible catheter, through the interior of the metal tube, in the same manner into the pericardial cavity in another animal, so as to establish the communication in the usual mode, Dr Barry produced the same alternate ascent and descent of the fluid, and the same transference of fluid from the cup to the cavity of the pericardium. In all the cases in which this communication was established, the fluid rose in the glass tube as rapidly as in the former experiments; and in all but one its ascent was regulated by the animal's inspiration. In all, however, with the exception of this single case, though the liquid invariably halted or descended during expiration, it observed also an oscillating motion upwards, which seemed independent of respiration, but could not be observed during inspiration, because it was then confounded with the general motion upwards.

These experiments were repeated first at the school of medicine, in the presence of Baron Cuvier and M. Dumeril, appointed by the academy, of Professors Laennec, Cruveilhier, Billery, Breschet, Edwards, &c. afterwards at the king's garden; at the school of Alfort, in presence of M. Girard; and at the Abbatoirs of Montfaucon; and the first and third were finally repeated at the Veterinary College in London, in the presence of Professor Coleman and his pupils, and Drs Bostock and Macann, and Messrs Sewel, Wardrop, and Broughton.

Hitherto the arguments and experiments of Dr Barry related solely to the motion of the blood in the *venæ cavæ*, and to the supply of the right cavities with blood. To extend the same views to the pulmonary or small circulation, he proceeded to inquire into the circumstances attending the motion of the blood in the pulmonary veins; and he thinks he has succeeded in proving, that nature has employed a simple and effectual mechanism to secure a constant and ample a supply of this fluid to the left cavities of the heart, by means of the same agent of atmospheric pressure.

For this purpose he directs the attention of the physiologist to the anatomical arrangement of the pulmonary veins in the horse, which present the following remarkable circumstances 1st, The principal veins of the left lung enter the right cavity of the chest; 2d, The veins of what is termed the middle lung (of quadrupeds) cross the largest vein of the right lobe, to empty themselves into a particular point of the conflux of the left pulmonary veins; and, 3dly, the veins of the middle lung empty themselves at one of its extremities, instead of at its root.

This mechanism Dr Barry conceives to serve a particular purpose, which he demonstrates in the following manner. After introducing into the cavity of the left posterior pulmonary vein the end of a tube prepared and secured as in the first experiment, he imitated the direction which the middle lung would take when inflated, by pulling its apex gently, when the coloured fluid rose so forcibly, as to flow abundantly into the reservoir formed by the confluence of the two great posterior or right and left pulmonary veins. When the experimenter ceased to pull, the liquid also ceased to flow. When the lung was pulled horizontally towards the left, the coloured water seemed inclined to return towards the glass; but when it was pulled towards the right, the liquid rose; and the more the middle lung was raised from its attachments, the more rapidly it flowed.

In the application of the inferences derived from this experiment to the pulmonary veins in the human subject, Dr Barry requests the attention of the physiologist to their connection with the pericardium. A small tongue, he remarks, appears to be cut in this bag from behind forwards, to allow each vein to pass through a kind of square opening to the heart. This slip or tongue being pulled backwards and outwards, from the general line of the insertion of the pericardium, is firmly attached to the anterior surface only of the vein. The effect of this arrangement Dr Barry represents to be, that when the pericardium is carried forward by the protrusion of the sternum, and when it is enlarged at its base by the expansion of the lungs, the anterior surfaces of the pulmonary veins where they enter the left *sinus venosus* must be strained forwards, while their posterior surfaces are retained in their situation. This contrivance is entirely wanting in the lower animals; and conversely, the accretion of the contiguous sides of the *cavæ* and pulmonary veins, so distinct and extensive in quadrupeds, is not found in the human subject, at least not on the outside of the pericardium. The importance of the pericardium in the mechanism of the circulation, is further seen in the fact, that it is the only part of the animal which is never found entirely wanting.

The last experiment described by Dr Barry, is one in which he substituted, with considerable dexterity, for a portion of the left jugular vein, a short glass tube with a globular expansion like a blowpipe, properly secured by ligature,—with the view of observing the transit of the blood through the vein, and consequently through the globular bulb, and the impulse which it received from the motions of respiration. He succeeded completely in witnessing the transit, and in demonstrating the impellent influence of the motion of inspiration; and as his observations were prolonged, repeated, and careful, he regards the experiment as unequivocal and conclusive, in demonstrating the agency by which the venous blood is moved.

Dr Barry having, by these experiments, succeeded in verifying the two results which he had anticipated as criterions of the soundness of his theory, thinks himself justified in drawing a series of conclusions to the following effect:—

> " 1st, That the blood which *runs contrary to its own gravity, arrives at the heart only during inspiration.*
>
> " 2dly, That the power which impels it at this moment through the veins, is atmospheric pressure.
>
> " 3dly, That as this power can be applied to the blood of the veins only at the moment of inspiration, this blood must move with a velocity which is to that of the blood moving through the arteries, as the time occupied by a whole respiration is to the time occupied by a single inspiration.

" 4thly, As the blood passes through the greater veins during inspiration only, whilst it is incessantly traversing the arteries, it follows, that an accumulation must take place somewhere between these two orders of vessels, and that the quantity of this accumulation must be to the quantity which passes through the arteries during an entire act of respiration, as the time of one expiration is to that of a whole respiration.

" 5thly, That, as it makes no difference with regard to the event, whether the accumulation which must be prepared for the expansion of the thorax, be made by two pulsations of the arteries or by ten, it follows that the frequency of the pulse cannot be taken as the measure of the velocity of the blood returning to the heart, because it is the repetition of the inspirations which must regulate this velocity.

" 6thly, That there are three quantities of blood; one passing through the arteries, one which is sucked up by each expansion of the thorax, and a third, which is collected during expiration between these two points. When, therefore, the respiration becomes hurried, this third quantity is diminished, whilst the other two are increased in proportion; but as the heart can admit only a certain quantity, the expanding cavities regurgitate the surplus during their collapse. Hence pathological phenomena, into which I shall not enter for the present.

" 7thly, That the lymph and chyle must be sucked up towards the chest, through the direct communications which the vessels peculiar to these fluids have with the subclavian and other veins. The question of absorption, therefore, which has hitherto puzzled physiologists so much, may now be considered as decided, for it is clear that the open mouth of a vein, or of any other vessel, having the same kind of communication with the thoracic pumps, must absorb in direct proportion to the sucking power applied to it, and to the pressure exercised upon the matter to be absorbed.

" 8thly, It being now evident, from every thing that has been said, that the blood in the veins is placed under the influence of atmospheric pressure, it would be curious to trace the connexion which appears to exist between disease generally, intermittent fever for example, and the daily barometric variations.

" 9thly, The preceding facts explain also why animal life cannot be maintained beyond a certain degree of atmospheric rarefaction, and why it must cease as soon as the pressure of the surrounding air ceases to be superior to the gravity of the column of blood. Birds are provided with a respiratory mechanism, which, in some measure, exempts them from this inconvenience.

" 10thly, At the cardiac extremities of the great veins there exists, as we have shown, a mechanism, which, when called into action by the expansion of the thorax, distends their cavities, and, consequently, causes the suction of the blood of the veins of the lesser, as well as of the greater, circulation. Now, as this mechanism can act only during inspiration, and as, from its construction, and its position, it must necessarily affect those portions of the auricles within the pericardium, called the sinus venosi, it follows that there can be no alternation of contraction between these parts of the auricles and the ventricles corresponding to the pulse, because the sinus venosi must be in a state of progressive distension from the beginning to the end of *inspiration*." Pp. 35—39.

These conclusions are illustrated and confirmed in a supplement, in which the author shows, that the two properties of gravitation and atmospheric pressure exercise an equal influence with regard to animate as to inert matter. The reasoning and the experiments which he employs for this purpose, though clear and connected, are, however, too long for being transferred, even in an abridged form, to these pages. It is sufficient to say, that Dr Barry thinks they warrant the inference, that fluids, whether moving through living or through inert tubes, obey the laws of pressure and gravitation; and that, in the quiescent living animal, the only demonstrable active powers employed by nature to propel the contents of the veins toward the heart are; first, the impulse given by this organ itself, continued through and propagated by the arteries; secondly, atmospheric pressure diminished or annihilated round the cardiac ends of the venous tubes, during the expansion of the chest, but unaltered and entire round every other part of their surface, opposed only by the gravity of the fluid impelled; and, thirdly, gravitation when the heart is the most depending point, or when this acts with the pressure of the heart's contraction on the base of the venous column. Of these powers the pressure of the atmosphere, Dr Barry contends, is far the most intense in its degree, the most constant in operation, and the most unvarying in amount; and he regards it of such importance, that without it, he conceives, the circulation could not be maintained beyond a few moments.

This theory, if well-founded, will not only illustrate, but modify considerably the opinions entertained on the nature of the state termed *asphyxia*. In the explanation of the phenomena of this condition, physiologists will have to look not only to the absence of chemical change in the venous blood, and to the successive poisoning of the organs by this fluid, as Bichat and most of his followers have inculcated, but to the absence of that mechanical change which respiration, according to Dr Barry, effects, and to the subversion of that balance which is maintained in the sound state of the circulation, between the propulsive power of the heart on the one hand, and the resistance afforded by atmospheric pressure through the medium of the lungs on the other. It will follow, from the theory of Dr Barry, that, the moment the air is excluded from the lungs, either by suffocation, by strangulation, by suspension, or by drowning, the arrival of the venous blood at the left auricle, perhaps also at the right auricle, ought to cease, or if it does reach these cavities, it can no longer be expelled from them, since the agent by which this is effected has ceased to operate.

The memoir, of which we have given the foregoing account, was submitted to the examination of Baron Cuvier and Professor Dumeril, who, as commissioners appointed by the Royal Academy of Sciences to examine and report, also witnessed the principal experiments. They bestow on it the most flattering encomiums, and accede to the general soundness of the conclusions drawn by the author, with two exceptions;—the application of the theory to the pulmonary or smaller circulation, which, as they remark, rests more upon reasoning founded on anatomical structure, than on direct experiment, and to which some facts of comparative anatomy might be successfully opposed; and its incompetency to explain the motion of the blood in the veins of fishes, and of some reptiles in which the motion of the blood is different.

It must be conceded to Dr Barry, that he has devised his experiments with considerable ingenuity, to demonstrate the object of his researches; and that, by performing them with great dexterity, and with suitable precautions, he has completely succeeded in proving the agency of atmospheric pressure in impelling the blood along the large venous canals which are near the heart, and consequently under the influence of the vacuum which its action has a constant tendency to form in the right auricle. Whether his experiment, (the 4th,) be sufficient to demonstrate the same effect in the veins connected with the left auricle, will depend very much, not only on its being somewhat varied, but on the considerations which he has drawn from the anatomical arrangement of the pulmonary veins being founded on a solid basis. We could have liked that the author had rendered somewhat more justice to Dr Carson, who must be admitted to have preceded all others, so far as we know, in distinctly ascribing the motion of the blood in the veins to atmospheric pressure, as exemplified in what he termed the *suction power* of the heart. There is a remarkable resemblance between the reasonings offered by this author, and the preliminary considerations which Dr Barry entertained, and which eventually led him to try the truth of his theory by experiment. This coincidence is particularly remarkable in the functions ascribed by both authors to the pericardium. It must be admitted, however, that while Dr Carson offered so many speculative reasonings, as almost to perplex the reader without convincing him; to Dr Barry belongs the more substantial merit of not resting satisfied with mere speculation, but of establishing the truth of his opinions on the firm basis of accurate philosophical experiment. In all respects the memoir is a perfect model both of precision of thought and accuracy of reasoning, to which perhaps nothing can be compared since the neat and classical essay of Goodwin, on the connexion of life with respiration. We have merely to remark, that the concluding paragraph about the "Temple of French science," and "Prejudice stripping physiology of philosophic honour," is quite unworthy of an author of the indisputable talent and sense of Dr Barry.

The second part of the work of Dr Barry consists of his essay on the function of absorption, in which the author undertakes to prove, that the process to which this name is applied, depends on the same general cause to which he ascribes the motion of the venous blood, namely, the constant influence of atmospheric pressure.

From a short comparative view of the opinions entertained in ancient and modern times, and from the practice observed during ages of the highest antiquity of the treatment of wounds supposed to be poisoned by suction and cupping-glasses, Dr Barry infers, that the history of external absorption and traumatic poisoning may be distinguished into three epochs. During the first period, from the times of Machaon to those of Celsus, the traces of any theory of absorption are few and imperfect, while the treatment of poisoned wounds is disguised amidst the religious absurdities of the day. The second period, between Celsus and Boerhaave, he considers to be distinguished by sounder physiological views on the mode in which the poison deposited in the wound was conveyed into the system. As the blood-vessels were supposed to be the channels through which this transport was effected, to them the curative and preventive treatment were chiefly directed. The treatment of the wisest physicians, however, was still debased by some of the most futile and pernicious practices; for instance, the re-application of the poisoned instrument to the wound which it had already inflicted, and which may be traced from the time of the Trojan war or the story of the spear of Telephus, through the writings of Galen, and downwards, to the days of Paracelsus and his followers, when it was associated with the doctrines of secret sympathies. Even the practice of slaying a dog supposed likely to become rabid, to prevent the person bitten from being affected with hydrophobia, was by no means uncontaminated with the folly of the same doctrine. During the third period, from Boerhaave to the present time, Dr Barry contends that, in consequence of the discovery of the lymphatics, and the part subsequently ascribed to these vessels in the process of absorption, when all mechanical explanations of actions in the living body were subverted by the supporters of vital actions only, the treatment of poisoned wounds underwent a corresponding revolution. As the sanguiferous veins were denied all participation in the function of absorption, suction and the cupping-glass were abandoned and proscribed as too mechanical, and inconsistent with the true nature of the absorbing process. Even the idea of *imbibition*, as proposed by Magendie, the restorer of the venous theory of absorption, has not in any manner, Dr Barry remarks, contributed to advance the treatment of wounds believed to be poisoned.

Having premised these historical considerations, Dr Barry proceeds to inquire into the nature of the process of absorption, and to consider the agents by which it is effected. According to the ideas which he entertains of the incessant operation of gravitation and pressure, and their influence not only on dead but on living matter, absorption cannot, strictly speaking, be called a vital process, but is to be regarded as consisting in the transport of matter from the surface to the centre of a living animal, and therefore is to be understood like the term *suction*, in the language of physics, as importing the motion of a fluid forced by atmospheric pressure into a cavity, where, by expansion or otherwise, a tendency to a relative vacuum is established. According to this view, the motion of any fluid through a tube, one end of which is placed in any vein connected with the heart of a living animal, is to be regarded as a genuine example of absorption. If the fluid in the cup be placed under a vacuum, it moves not, but remains stationary; and consequently says Dr Barry, no absorption can take place *in vacuo*. The immediate causes or the circumstances essential to absorption are therefore reduced to two; 1st, a free communication between the matter to be absorbed and the thoracic cavities; and, 2d, atmospheric pressure modified by the expansion of these cavities, round one end of the communicating tube, while the same pressure is free and uninterrupted at the other end.

With these principles, to establish more firmly the truth of his theory, Dr Barry had recourse to the usual method of employing substances of such undoubted activity, that, if applied to any wounded surface, no reasonable person can question their absorption, for instance, concentrated prussic acid, pure strychnine, upas tieute, white oxide of arsenic, &c. He naturally inferred, that if, upon the application of these substances to a wounded surface, when placed under the influence of a vacuum, the usual effects were not produced, no absorption took place; and consequently that this was to be ascribed to the absence of atmospheric pressure.

Dr Barry experimented with these and other poisons on rabbits and dogs, having almost always two animals placed exactly under the same circumstances, except that the piston cupping-glass was applied to the one, while the other was abandoned to his fate. The animal abandoned invariably perished, within two, five, seven or twelve minutes, according to the energy of the substance employed. The animal to which the vacuum was applied never showed the slightest symptoms of poisoning, though the deleterious matter was allowed to remain in contact with the wounded surface during the space of one, two, or even five hours consecutively.

Dr Barry even conveyed the poison by means of a tube under the integuments to some distance from the opening by which it was introduced; and when the cupping-glass was applied to the sound skin, though the wound was beyond the bounds of the vacuum, no symptoms of poisoning appeared. When, upon the removal of the glass, convulsions or other tetanic symptoms began to appear, they were immediately suspended by the re-application of the glass; and the removal of the poison by an incision in the integuments saved the animal.

As we formerly noticed these experiments and their effects, (Vol. xxv. p. 462,) we shall not dwell longer on the subject. It is enough to say, that Dr Barry has repeated and varied them in every possible way; that he has performed them, to avoid every source of fallacy, in the presence of many distinguished men in the Parisian schools, and several in this country; and, if a theory is to be established by accurate experimental inquiry, his may be said to have received the most ample and undoubted confirmation.

Dr Barry shows also the application of this theory to the treatment of wounds inflicted by poisonous animals. In imitation of Fontana, he caused a number of animals to be bitten by vipers; and by submitting one of each pair to the influence of the vacuum, and leaving the other to the operation of the poison, he ascertained that he could invariably prevent its effects on the system by the early and diligent use of the cupping-glass. The influence of this contrivance was so decided, that his strong recommendation of the same plan in cases of persons and animals bitten by rabid dogs is perfectly justified, and, in all probability, likely to prove an efficacious remedy.

Upon the whole, the researches of Dr Barry must be regarded as by far the most interesting, the most important, and, we may add, the most accurate that have been performed for a long series of years, for the purpose of extending the boundaries of physiological knowledge. They throw a very considerable degree of light on some parts of the venous circulation and absorption, which have at all times perplexed physicians of the first eminence, and of the greatest acuteness. We may also add, that they entitle their author to a very high rank among the ablest physiologists of the present day.

PART III.

MEDICAL INTELLIGENCE.

ANATOMY AND PHYSIOLOGY.

On the alleged communications between the Lymphatics and the Veins. (Annali Universali di Medicina, Gennajo, 1826.)—In the Italian Annals for 1824, a short notice was given of some anatomical observations not yet published, which were believed to establish the existence of communications betwixt the lymphatic glands and the veins. Dr Rossi has taken up the same subject of inquiry, and has satisfied himself by very careful injections and anatomical examinations, that the supposed communicating vessels are not lymphatics, but veins, and are in fact the nutritious veins of the lymphatic glands. In the body of a young man, who died excessively emaciated from pulmonary consumption, he injected with quicksilver the lymphatics leading out of the inguinal glands, after previously securing the thoracic duct with a ligature above the diaphragm. On then laying bare the lumbar lymphatic plexus, he found issuing from it, besides the ordinary lymphatics, three small vessels proceeding one to the vena cava at its exit from the posterior concavity of the liver, another to the beginning of the emulgent vein, and the third to the termination of the spermatic vein. These vessels, which at first sight appeared to be lymphatics, proved on careful inspection to be veins; for they were uniform in calibre, had no valves, and contained a dark red fluid mixed with the quicksilver. On removing the lumbar and primary iliac plexuses, he found other vessels of the same description proceeding from them to the vena cava, the common iliac vein, and one of the lumbar veins.—In another body he injected the lymphatics of the mesentery. From the mesenteric glands he saw, besides the ordinary lymphatics, many short vessels proceeding to the great branches of the venæ portarum, particularly to the splenic veins. They contained very little mercury, however, and had all the characters of veins. In another body he injected the inguinal glands from one of the lymphatics at the knee; and in like manner remarked several little vessels going from the glands to the femoral vein, and filled partly with mercury, partly with blood. That these vessels had no valves, and consequently could not be lymphatics, was made evident by emptying them by incisions near their origin in the glands, and pouring mercury into their terminations in the femoral veins, when the mercury passed at once through the incisions. From these and other similar experiments Rossi concludes that the alleged communicating vessels are really veins; and very properly adds that the introduction of mercury into them by the lymphatics is not a proof of the passage of natural fluids from the latter vessels into the veins. In support of this statement he relates a dissection he made of the inguinal glands and lymphatics in a case of anasarca of the limb. The lymphatics were everywhere distended with colourless serosity; but the supposed communicating vessels contained a red fluid like blood. He therefore considers them as nothing else than the veins which convey into the circulation the blood employed in the nutrition of the glands.

Experiments on Pulmonary Exhalation. By MM. Breschet and Milne Edwards (Archives Générales de Médecine, Aout 1826.)—It is well known that the exhalation of watery vapour from the lungs is very great, and that many foreign substances introduced into the blood are rapidly discharged through the same channel. Reasoning from the late experiments of Dr Barry on the effect of cupping-glasses in retarding the absorption of poisons from wounds of the integuments, MM. Breschet and Edwards were led to infer, that, if suction prevents absorption, it must also promote exhalation ; and consequently that the suction, to which the blood in the lungs is subjected in the act of inspiration, is the cause why fluids are so rapidly exhaled from the pulmonary membrane. This inference was confirmed by the following experiments. Six grains of camphorated alcohol being injected into the peritoneum of a living dog, its passage by pulmonary transpiration became evident to the smell in three minutes. But in another dog similarly treated,—with the addition that, previous to the injection, the parietes of the chest were laid freely open, and the breathing supported artificially, so as to subject the air in the air-cells to constant pressure during inspiration,—the odour of camphor was never perceived at all. The effect of suction was still further shown very distinctly by laying bare the abdominal muscles and applying a cupping-glass to them ; for, in no long time the air in the glass had a smell of camphor.—A similar experiment was made by injecting oil of turpentine into the femoral vein. In the animal which breathed naturally the turpentine soon appeared in the pulmonary transpiration, and on examining the dead body the lungs and pleura were found much more strongly impregnated than the other organs. In the animal whose breathing was supported artificially, the presence of the oil in the pulmonary transpiration was much less distinct, and it did not impregnate the pulmonary tissue more than other parts of the body.—The same difference, however, was not remarked in the case of phosphuretted oil. It passed along with the pulmonary transpiration under both circumstances ; and it could not be drawn into a cupping-glass placed on the muscles of the epigastrium. The authors refer for the reason of this anomaly to the fact that fatty matters do not pass from the arterial to the venous capillaries of the pulmonary circulation, so that the phosphuretted oil must be gradually expelled by the contractions of the right ventricle through the membrane of the pulmonary air-cells.—It is not on every part of the external surface of the body that foreign matters can be drawn into the vacuity of a cupping-glass. The phenomenon is not nearly so remarkable on the thigh, for example, as on the epigastrium.

The experiments and views of MM. Breschet and Edwards are certainly ingenious and new ; but they require confirmation before the conclusions they have drawn in favour of the power of pulmonary suction can be admitted to the extent which they insist upon. They ought to be aware that the exhausting power which is in force during the act of inspiration is exceedingly small. We have found that, during natural breathing, it will not support, as estimated in the mouth, more than a column of four-tenths of an inch of water ; and although the force of suction will probably be greater than that in the extreme ramifications of the air-tubes, the allowance to be made for this increase will still constitute but a very feeble power.

On the relation between the Tartar of the Teeth and the Saburral Crust of the Tongue. By Dr P. S. Denis.—(Journal de Chimie Médicale, Juillet 1826.*)*—M. Denis collected a large quantity of the white crust which forms on the tongue during dyspepsia, with the view of submitting it to chemical analysis. The quantity he procured from one patient in the course of four months weighed in its dry state 231 grains. It was semitransparent and was formed of agglutinated grayish-yellow particles, with a number of very fine dirty crystals without apparent facettes. When treated with hydrochloric acid, part of it was dissolved with effervescence ; the remainder was altered mucus. The filtered solution gave an abundant precipitate of phosphate of lime with ammonia ; and after this was separated, the oxalate of ammonia threw down a considerable quantity of lime. The proportions of the ingredients in 100 of the dry compound were 50 of altered mucus, 34.66 of phosphate of lime, 8.66 carbonate of lime, and 6.66 of the ordinary soluble salts of the animal fluids. This composition agrees very exactly with the analysis of the tartar of the teeth as determined by MM. Vauquelin and Laugier. M. Denis, therefore,—after considering the various explanations hitherto given of the way in which the tartar of the teeth is formed, and proving in particular that it can be owing neither to a deposition from the saliva, nor to a secretion from the gums, as several late authors have imagined,—infers that it is formed by the saburral secretion from the tongue enveloping the teeth and depositing its crystalline matter upon them. This inference is established by various satisfactory arguments and especially by his having found that the slimy matter which envelopes the teeth of dyspeptics, who neglect to clean them, has the same composition as the saburral matter of the tongue.

CHEMISTRY.

A new substance found in sea water by M. Balard. (Annales de Chimie et de Physique, August 1826.)—M. Balard, chemist to the Faculty of Sciences of Montpellier, has discovered in the waters of the sea and of salt-pits, a substance, which, though resembling iodine and chlorine in many respects, possesses properties, however, so peculiar, that he regards it as a body not hitherto known to the chemist. This substance, which M. Balard names *muride*, but to which MM. Gay-Lussac, Vauquelin, and Thenard, propose to apply the characteristic appellation of BROME, (Βρῶμος, *Graveolentia, fœtor*,) in consequence of its strong smell, is best obtained in the following manner. A current of chlorine gas being transmitted through the mother water of the salt-pits, a quantity of ether is poured on the surface of the liquid, so as to fill the flask containing it. The two fluids are then mixed by strong agitation, and after some minutes of rest, the ether appears at the top of a fine hyacinth red colour, which is an ethereal solution of *brome*. This solution is then agitated with an alkali, *e. g.* caustic potass, which absorbs the *brome* in great abundance, forming a compound soluble in water, from which it may be obtained by evaporation in cubic crystals. These crystals reduced to powder, are mixed with black oxide of manganese; sulphuric acid diluted with half its weight of water is poured on them; and ruddy vapours arise, which are condensed into drops of brome.

The substance thus procured is fluid at the ordinary temperature of the atmosphere, and even at 18° below zero, Centig. = 0 F. In mass its colour is deep red-brown; in a thin layer it is a hyacinth red; and in vapour it resembles nitrous acid. It is very volatile, and boils at 47° Centigr. = 116.5 F. The odour is very strong and not unlike that of chlorine. Its density is about 3. Like chlorine, brome destroys colours. It dissolves in water, alcohol, and ether. M. B. combined it with many simple bodies and obtained singular compounds. In its chemical affinities, it is feebler than chlorine, but stronger than iodine. This property is remarkable, and gives probability to the notion that it may be a compound of these two bodies. With hydrogen it forms a hydracid,—the hydro-bromic; with oxygen the bromic acid, which, in its combination with bases, is very analogous to the chloric acid. When heated with the soluble alkaline oxides, it decomposes them like chlorine, with extrication of oxygen. In the cold it combines with these oxides, forming bromurets, which are easily decomposed by heat and the feeblest acids. The weight of its atom is 9,328, oxygen being unity. Brome is contained in small quantity in sea-water, and in the water of salt pits; but more abundantly in certain vegetables and animals which grow at sea, and especially in the bitter waters of the wrack-ashes, which furnish soda and iodine. Upon the whole, though similar in many features to chlorine, brome is at present to be regarded as a new substance, intermediate between this and iodine.

MEDICINE, MEDICAL PATHOLOGY, AND THERAPEUTICS.

Account of an Epidemic Disease, ascribed to Rye-Bread. (New York Medical and Physical Journal for 1825, p. 493.)—During September, October, and November 1825, the disease appeared among the convicts in the New York Penitentiary, which affected sixteen women and eleven men. The prisoners were fed on rye-bread, and the keeper observed that what they had been using for about three or four weeks before the disease made its appearence, contained a much larger proportion of spurred rye than he had ever seen, but as he considered it perfectly innocent, he did not take the trouble to separate it. Mr King, the surgeon of the penitentiary, however, thought otherwise; the use of the flour was accordingly immediately discontinued; and although during the fortnight after this two or three cases occurred, it then totally disappeared.

The usual course of the disease was as follows. Small discoloured livid spots first made their appearance on one or both of the lower extremities, generally about the foot, unattended at first by any local pain or uneasiness, or any general indisposition. After an interval of a few days, these spots would become more numerous, and extend up to the knee. They would now become painful, and in some cases the patient would lose entirely the use of the lower extremities. During the whole of the disease, the pulse was feeble, and generally about 100 per minute. The face usually had a peculiar livid appearance, by which the patients could, in many instances, at first sight be recognized. No unusual heat of skin was present; and the tongue was slightly coated, and very flabby. In several cases there was considerable disorder about the mouth, and in two or three hemorrhage from the gums. The bowels were generally regular; in no case was there diarrhœa present. The urine also appeared natural in quantity and quality. The spirits of the patients did not seem at all affected, and their appetites continued good throughout the whole course of the disorder. In all the fatal cases, death was preceded by severe colicky pains in the bowels. The usual duration of the disease was about four weeks. The women and the old people seemed most affected by the disease. Of thirty-two cases, the whole number that occurred, ten proved fatal. The following is the only dissection which was made.

The subject, upon examination, presented an unusual deposition of adipose substance upon the inner parietes of the abdomen. The greater epiploon, however, was shrivelled, and very dark. The liver was healthy, and the gall bladder full of bile. The uropoietic viscera were sound, and the kidneys secreted their due proportion of urine. The intestines were found studded with dark livid spots, which presented themselves in greater abundance upon the larger intestines, traversing the transverse arch of the colon to its descending portion. The sigmoid flexure and the rectum were studded with one continued series of dots. A portion of the duodenum was likewise diseased. The stomach appeared inflamed with a discoloration upon the under and larger portion. The pancreas and spleen presented nothing unnatural.

The subject examined was a female; and from a knowledge of the cause supposed being to produce its specific action upon the uterus, that organ was more particularly examined. It appeared quite natural, of its ordinary size, and perfectly healthy.

In treating the patients, bark and wine, carbonate of ammonia, and nitrous vinegar were the remedies principally used. Bark and wine seemed to be the most efficacious. Opium was given as circumstances required, to alleviate pain and procure sleep.

Successful Inoculation of the Measles. (Bibliotheca Italiana, Agosto 1825.*)*—This inoculation, which was performed with success by Home and Horst, and recommended by Vogel, Percival, Brown, Monro, and Tissot; but was afterwards condemned by Cullen, Girtanner, Rosenstein, Vaidy, and Montfalcon; was again employed with advantage by Professor Speranza in an epidemic which prevailed in the territory of Mantua in 1822. Six boys in the House of Industry, and afterwards he himself, were inoculated with the most evident effect in propagating the disease, which in all followed a mild and regular course. A repetition of the experiment, by himself and others, had the same fortunate issue. The inoculations were performed in the following manner:—A slight cut was made into one of the most vivid of the large spots with a lancet, the point of which was covered with the blood effused. With this some small incised punctures were made on the arm, and a proper bandage applied. The phenomena of inoculation commonly appeared in a few days.

Inoculation of Purulent Ophthalmia. (Gerson and Julius's Magazine, July and August 1825.*)*—Dr Kirkhoff, in a communication on the ophthalmia, as it appeared among the troops of the Netherlands, used every means of ascertaining whether it was contagious or not. Several times he permitted persons afflicted with ophthalmia to sleep with wounded, venereal, and other patients, and he never saw the ophthalmia communicated in this way. He inoculated some with the matter which flowed from the eyes of those affected with the ophthalmia; and although he merely touched the edge of the eyelid, in such manner that it could not affect the eye as a foreign body, ophthalmia followed in one, two, or three days. One of the physicians under him, Dr Hupach, in order to prove his firm conviction that the disease was not contagious, made the experiment upon himself; but, in twenty-four hours, was seized with ophthalmia in so violent a degree, that he nearly lost his sight.

On the diuretic properties of the Equisetum. (Beobachtungen und Abhandlungen, von Oesterreicheschen Aerzten, Vol. v.)—The various species of the Equisetum have been recommended by Professor Lenhossek of Vienna as a very powerful and specific diuretic, which neither oppresses the digestive organs, nor induces any bad consequences in the vascular or nervous systems, and is therefore preferable to squill, digitalis, colchicum, and other diurectic remedies, whose unpleasant consequences are too well known. It is particularly serviceable in serous accumulations from debility, or after exanthematic fevers, and is contraindicated in inflammatory states of the system. All the species of *equisetum* possess a directly diuretic virtue; the *arvense*, *variegatum*, *ramosum*, and *palustre*, act more mildly, but the *hyemale* and *limosum* act more powerfully, and are more apt to induce bloody urine. The dry plant is also preferable to the recent, which is more active. It has been sometimes given in powder, but the decoction answers well in every case, as it is not offensive either in smell or taste, and children take it readily when sweetened. Two or three drachms of the dried herb are to be boiled in a pint of spring or river water for a quarter of an hour, and of the decoction a spoonful or two may be given to children, according to their age, and adults may take half a cupful, or a whole cupful, every two hours, until the flow of urine be increased.

SURGERY AND SURGICAL PATHOLOGY.

On the treatment of Diffuse Cellular Inflammation, Burns, and other acute Inflammations of the Extremities, by Compressing Bandages. By M. A. Velpeau. (Archives Générales de Médecine, Juillet 1826.*)*—We shall now give an account of the ulterior observations of M. Velpeau on his proposal, which was noticed in our last number, to treat the various species of Diffuse Cellular Inflammation by Light bandaging. In the former paper he gave illustrations of the efficacy of this treatment in that form of the disease which arises spontaneously, and in that which succeeds operations and contusions, or supervenes on neglected bruises and old ulcers. In the present memoir, which is a long one, he has illustrated its employment in the spreading inflammation which often succeeds the operation of blood-letting, in that which occasionally accompanies deep-seated disease, even of the bone, and in that which forms the most striking feature in the sequelæ of superficial burns; and he concludes his inquiries by a few remarks on its mode of operation, and the precautions to be observed in resorting to it.

In that part of his paper which relates to the effect of compression on spreading inflammation subsequent to phlebotomy, there is nothing particularly different from the statements in his former essay. He appears to have repeatedly employed his method with the most flattering success. The following case will serve as an excellent example.—*Case* XI.—A young man of nervous constitution, and evidently affected with enlargement and hypertrophy of the heart, was bled from the arm to check the palpitations to which he was subject. On the same evening he complained of pain in the wound, and next morning there was a small red tubercle in the seat of pain. On the third day the tubercle suppurated and opened externally; but the inflammation nevertheless extended around it. Leeches and cataplasms were then applied, but with little advantage; for on the fourth day the redness had extended over a part of both the arm and the forearm, and the patient was harassed with racking pain from the wrist to the insertion of the deltoid muscle. The disease was allowed to go on increasing for four days longer, at which time he first came under the notice of M. Velpeau. The whole arm was then swelled to twice its proper size, the skin was red and resilient to the top of the shoulder, the glands of the armpit were swelled, the sufferings of the patient most acute, and the symptoms of general fever very violent. In no part of the diseased limb was there any fluctuation or any of that peculiar bogginess which indicates deep-seated suppuration. A bandage was immediately applied with moderate tightness upon the whole arm, and afterwards moistened with a decoction of mallows. In the course of the same evening the pain became much less acute, and the constitutional disorder began to abate. Next morning there was no longer any pain felt even on pressure; the redness had disappeared and the swelling was lessened by two-thirds; and the headach and fever were gone. The bandage was reapplied, and tightened considerably. Some pain was caused by the dressing, but it was calmed again in a few hours; on the following morning the resolution was complete; and all that remained of the effects of the disease was a spasmodic contraction of the *biceps* and *supinator longus* muscles, which also ceased in a few days.—To this striking case the author annexes a similar one, in which suppuration had begun in the fold of the elbow before the treatment by bandaging was resorted to; and he proves that the presence of an abscess is not a material objection to his method, provided care be taken to leave the part over the abscess free from pressure. He has likewise added two short cases from Theden, a German surgeon of the middle of last century, showing that the proposed plan of cure was practised with success at that time. He farther takes some credit to himself for correcting the belief among his countrymen, that inflammation of the vein is the commonest form of the disease which follows phlebotomy. If he had taken the trouble to instruct himself in what has been written on the subject within these few years in Britain, he would have known that Mr Travers had corrected this error in 1818, and that Dr Duncan, junior proved in 1824 that inflammation of the vein was by no means essential, or in any case the cause of the propagation of the disease as some imagine. This is not the first instance we have had occasion to point out of the young medical writers of Paris taking a geat deal of trouble to establish doctrines long ago settled in this country.

The next set of cases reported by M. Velpeau are intended to prove the advantage of tight bandaging in spreading inflammation, even when accompanied or perhaps caused by deep-seated disease. Besides other cases related under this head, he has described a very apposite example, in which the fundamental disease was necrosis of the *radius*. When the treatment by bandaging was commenced, the whole intermuscular and subcutaneous cellular tissue of the forearm was the seat of inflammation and infiltered with pus, the skin was extensively undermined anteriorly, and through an aperture, by which an abscess had been discharged, the muscles could be seen separated from one another as if by the dissector's scalpel. This aperture was enlarged and dressed with tents, and the whole limb was then firmly bandaged. The torture which the patient had till then suffered was soon relieved; he slept well; next morning he had neither pain nor fever; and all the local symptoms were much abated. Two large portions of necrosed bone were subsequently discharged through the opening in the arm, and the cure was soon afterwards completed.

The next section of the paper treats of the effect of compression in the treatment of superficial burns. This method of cure was proposed in 1815 by M. Bretonneau of Tours in a treatise entitled "*de l'Utilité de la Compression dans les Inflammations Idiopathiques de la Peau;*" but it had received very little attention from surgeons, even in his own country, although the cases he relates are sufficiently pointed. On reviewing his own cases, and those of Bretonneau, M. Velpeau states as his general conclusions, that compression by bandages, when applied immediately in burns of the first degree, removes the pain and prevents inflammation altogether, and when applied after inflammation has begun, checks it at once;—that in burns of the second degree immediate compression prevents blistering and all the usual consequences, and compression at a later stage reunites the cuticle to the true skin, dries up the serous discharge where the cuticle has been ruffled off, and speedily brings the exposed surface to the state in which it is found after the healing of the superficial ulceration caused by vesicatories;—and that in the severer form of burns, in which the true skin itself is injured, so that it must be thrown off by sloughing, compression-bandages prevent every sequela, except what is connected inseparably with the formation of eschars, and even accelerates their cure, and renders them less painful. The following example from the practice of M. Bretonneau is well worthy of insertion.—*Case* XXIV.—A stout boy, twelve years old, fell into a large cauldron of hot water, and in consequence burnt the whole right arm, the left as high as the middle of the humerus, the right leg as far up as the middle of the thigh, and the left leg in scattered spots. All these parts became speedily covered with large blisters, and in some places the surface had that yellow appearance which denotes injury of the substance of the true skin. The sufferings of the child were excessive. The blisters being evacuated by punctures, and the parts, which had been stripped of the cuticle, being covered with *taffetas gommé*, a roller bandage was carefully applied on the whole four extremities. The dressing was hardly completed when the pain diminished considerably, and next day it had entirely ceased. Wherever the scarf-skin had been raised in blisters, it had again adhered and had become dry. In six days there remained of this extensive burn only the parts which appeared yellow; the rest of the skin had returned to its natural state. The yellow portions sloughed off, and healed by granulation in the usual manner. This is a striking case. General experience would certainly lead a surgeon to anticipate a fatal termination in a burn of such extent on a person of that age.

The remainder of the paper is occupied by an exposition of the mode in which compression operates, and of the precautions to be observed in employing it. In strong persons, particularly when the inflammation is extensive, he advises the previous use of the lancet. When the pain is not acute, and the swelling considerable, the bandage should be moistened with spirits; and with an emollient decoction if the pain is acute, or an abscess has formed. When matter has been fairly formed, and is not diffused throughout the cellular tissue, but collected in an abscess, the bandage should be applied loosely over its seat. In every case the bandaging should be begun at the extreme end of the limb, and continued upwards above the bounds of the inflammation; the pressure should decrease towards the chief seat of the disease, and increase again towards the upper healthy part of the limb; and the greatest care should be taken to apply the bandage smoothly and uniformly.—He enumerates at the close the various authors who have written on the subject of compression before him, and claims only for himself the merit of applying it to diffuse cellular inflammation. He does not seem to be aware that Ambrose Paré used it in that form of inflammation which is caused by phlebotomy.

Treatment of Artificial Joint by Excision of the Ends of the Bone. (Annali Universali di Medicina, Febbrajo 1826.)—This operation, first proposed by White, and since performed by various surgeons, has been lately tried by Cittadini of Arezzo. As it has been attended with but indifferent success in the hands of many, and Cittadini succeeded completely, we shall add the particulars of his case. A farm-servant sustained a fracture of the radius and ulna from a blow with a stick. In a month the ends were re-united; but they were again separated in consequence of his returning too soon to his work. Three months after the injury he came under Cittadini's care, who found in the seat of the fracture a preternatural joint, which permitted the lower part of the forearm to be bent upon the upper in every direction. The patient was first subjected again to the ordinary treatment for two months; but as no appearance of union ensued, it was inferred that a fibro-cartilaginous matter had covered the ends of the bones. The fragments were therefore rubbed on each other to excite inflammation, and the arm was kept in a state of continual extension. The result not being more favourable, Cittadini resolved to cut down upon the fracture, and saw off the broken ends. This was accordingly done by making a longitudinal incision through the integuments of the palmar surface of the forearm, detaching so much of the muscles as left two or three lines of each of the ends of the bone free, and then removing with the saw about two lines from each of the broken ends of the ulna. The patient would not submit to have the operation extended to the radius. The wound was therefore properly dressed, and the arm secured with a twelve-tailed bandage. Violent inflammation ensued, on account of which it was necessary to remove the bandage, to apply emollient poultices, and to resort to blood-letting. Profuse suppuration succeeded; and in the course of a month, it extended over the whole forearm and hand, so as to require several counter-openings. Eventually, however, these accidents were got the better of; the wound cicatrized, the fractured ends of the ulna were connected by an osseous union, and, what is remarkable, the broken radius also became firmly united, apparently in consequence of the fibro-cartilaginous covering of its fragments having been destroyed by the suppuration. In six or seven months the swelling of the arm was entirely removed, the muscles soon recovered their suppleness, and the man is now able to make every kind of exertion with facility. We hardly think this case is much in favour of the treatment by excision, as the patient made a narrow escape. In our next number we shall give an account of a paper very favourable to the method by the seton.

Partial removal of the Humerus in the Hamburgh Hospital. (Gerson and Julius's Magazine, July and August 1825.)—A young man dislocated his humerus, and fractured it close to its head. He did not apply for several days after the accident. At the end of some weeks the fracture was not reunited; and the lower (proximal or distal?) end of the bone stood so much out that its sharp edges constantly irritated the soft parts, and the patient could not move his arm, as the slightest motion caused intolerable pain. To remedy this, the point of the lower (proximal or distal?) fragment was separated from all the surrounding soft parts, and a considerable portion sawed off, in order to form an artificial joint. The operation succeeded perfectly. After the healing of the wound, the use of the arm was restored, with little difference from the sound arm.

On Forcible Injections as a remedy for Stricture of the Urethra. (Annali Universali di Medicina, Marzo 1826.)—In our last April Number we gave a short account of a method, proposed by M. Amussat of Paris in the *Archives Générales* for October 1825, to dilate strictures of the urethra by means of the forcible injection of water into the canal. It would appear that a similar mode of cure occurred about the same time to Cittadini, professor of anatomy and surgery at the Royal Hospital of Arezzo; but he employs it only as preliminary and accessory to the introduction of the catheter or bougie. It was suggested to him by his observing, that when a person with stricture makes urine, he passes it at first in drops, which increase in frequency, till a stream is formed, and that then the stream gradually becomes larger and larger, till it often attains a considerable magnitude. Conceiving that the increased flow could arise from nothing but increased enlargement of the canal, he resolved to imitate this natural process by injecting water in the opposite direction. He accordingly found, that if a syringe was adapted to the end of a catheter, the point of which touched the stricture, and water was slowly injected, while its escape was prevented by squeezing the glans round the catheter, the stricture was soon dilated, so that the catheter, which was kept constantly pressing onwards, entered without any difficulty. This mode of treatment certainly deserves a fair trial. Theoretically it is plausible; and the facts are presented by the most creditable authorities. It appears that no other method is attended with so little pain.

Case of discharge of Fragments of a Fœtus. (*Sulzb. Med. Zeitung, February, p.* 176.)—In Ariano, a town of about 12,000 inhabitants, in *Principato Ulteriore*, the following singular case has been observed. Twenty-two years ago, a woman called Antonia Friccione, felt, in the fifth month of pregnancy, symptoms as if she would miscarry, and shortly after this, one of the legs of the child presented itself. The soft parts of the limb, as well as of the whole body, came away in the natural manner, but they were in a complete state of putrefaction. The woman lost a considerable quantity of blood, and was so weakened that she was confined to her bed a year before she was fully restored. In the course of ten years, she felt slight pains in the neighbourhood of the uterus, and through a hole not far from the cervix of this organ, were voided the ulna, radius, parietal and occipital bones of a child. The hole cicatrized, and the woman again became quite well. In six years after this, there came through the same hole six ribs. The opening cicatrized in a very short period, and, in the course of a year, the woman, on account of pains which she felt in the abdomen, called to her assistance Dr Furbimbo, who, without the slightest difficulty, removed a rib from the passage of the vagina. During this long series of years, the menses have been suppressed; she has, however, constantly done hard work in the fields, which occupation she still pursues, and enjoys very good health.*

LEGAL MEDICINE AND MEDICAL STATISTICS.

Comparative diseases of the Tailors, Carpenters, and Bakers in Hamburgh. (*Gerson und Julius Magazin der ausländischen Literatur, July, August* 1825.)—In this free city are two small hospitals supported by the free-masons. That appropriated to the male sex was intended for labourers; but, in 1805, began to be resorted to by the tailors, and, in 1811, by cabinet-makers; but the latter did not use it after September 1824. The total number of tailors treated was 785; of cabinet-makers, 511; and of bakers, only 71;—and the deaths were, 84 tailors, or 1 in 9; and 21 cabinet-makers, or 1 in 24; bakers 4, or 1 in 18. Diseases which are apt to prove fatal to weak persons were much more fatal to tailors than cabinet-makers; of those affected with nervous fever, one-third of the tailors, and one-seventh of the cabinet-makers died. Of twelve cases of abdominal inflammation, seven tailors died, while five cabinet-makers recovered. One-half of the deaths among the cabinet-makers was from phthisis; one-third of the tailors. The following table exhibits the proportions affected with the principal diseases, compared with the total number of patients exercising each trade:

Diseases.	Tailors.	Cabinet-makers.	Bakers.
Catarrhal fever, -	one in 6	9	6
Rheumatic fever, -	15	14	6
Nervous fever, -	12	24	18
Gastric fever, -	12	12	18
Intermittent fever, -	10	17	18
Inflammatory fever, -	98	64	—
External injuries, -	98	22	35
Ulcers, - -	98	12	14
Ascarides (*fingerwurm*),	—	46	—

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* We regret that this case is so imperfectly related, as to leave us in doubt whether the woman had any medical attendant at the time she miscarried, and in what state the bones were which were expelled through the opening in the vagina.

Arthodynia (*Gicht*),	27	26	10
Pectoral disease,	10	10	14
Phthisis,	22	32	—
Hæmoptysis,	4	102	—
Asthma,	131	170	24
Hepatitis,	98	170	—
Icterus,	60	73	—
Hemorrhoids,	98	255	—
Deaths,	9	24	18

Extracts from the Bills of Mortality of Berlin for the year 1825. (*Hufeland's Journal der Practischen Heilkunde*, April 1286.)—In the year 1825 the population of Berlin, including the military, was 203,470. The births were 8033, or one in twenty-five of the population; and of these 4127 were males, and 3906 females,—6876 legitimate, 1157 illegitimate. The deaths were 6426, or one in thirty-two of the population; of these 3494 were males, and 2932 females,—2102 under twelve months, 3222 under ten years, 3426 under twenty years, 599 above seventy years. The still born were 381, of which 215 were males, 166 females. The marriages were 2126. The births exceeded those in 1824 by 502, the deaths were fewer by 40, the marriages more numerous by 325.

The deaths, within the first twelve months among the illegitimate children amounted to one-half of the births, and among the legitimate children to one-fourth only. The difference in the chance of life between legitimate and illegitimate children is farther shown by the mortality among those under ten years, and by the proportion of still-births. The illegitimate children form only an eighth of the births, but a fifth of the deaths before the close of the tenth year: the proportion of still-births among illegitimate children is a tenth, among legitimate children only a twenty-sixth. On comparing these proportions with those formerly assigned by Dr Casper for the years 1819—22, inclusive, (see p. 174 of our last volume) it appears that there is a diminution in the proportion of illegitimate births from 16 to 12½ per cent.,—but an increase in the deaths among the illegitimate from 49½ per cent., before the fifteenth year, to 50 per cent. before the tenth year,—and also an increase in the proportion of still-births among the illegitimate from 8½ to 10 per cent. These facts are very curious. In our review of Casper's Statistics we showed, that as illegitimate births increased in Berlin, the proportional mortality among illegitimate children decreased very remarkably. If the facts above-mentioned are confirmed by future experience, it will follow that this proportional mortality will go on increasing as the proportion of natural births decreases again. The cause is not far removed from observation.

In the list of the causes of death the most interesting facts are the following. Forty-seven women died in child-bed, that is, the deaths in child-bed were one in 137 of the general mortality, being somewhat more than between 1819 and 1822. Of the 47, 22 died of puerperal fever. Sixty died of measles, 108 of scarlet-fever, 1076 of various inflammatory fevers, 416 of consumption, 358 of dropsy, not reckoning hydrocephalus, of which there died 77, 558 of apoplexy, 7 of small-pox, 75 of accidents, 47 of suicide. The mortality lists of Berlin will be henceforth of very great value; for, by a municipal regulation, the friends of every deceased person, when they announce the burial to the proper church-officers, are required after this to fill up a schedule of particulars, and likewise to present a certificate of the cause of death by the medical attendant.

Poisoning with Foxglove. (*Morning Chronicle, October* 30*th and* 31*st* 1826).—The following case appears very interesting, and well worthy of notice, although the circumstances have not hitherto been accuratey detailed. It is the first characterestic example we have read of the acute form of poisoning with digitalis; and it illustrates well the double narcotico-acrid properties of the poison. Jacob Evans, a herbalist and quack-doctor, was tried at London for manslaughter, by administering to an apprentice lad an over-dose of foxglove. The lad had been troubled for some time with a trivial complaint, for which his mother consulted the prisoner Evans. He recommended a strong decoction of digitalis to be taken as a laxative; and, accordingly, the lad took one morning about six ounces of a decoction prepared by the prisoner. Very soon afterwards he was attacked with sickness, vomiting, severe pains in the bowels, and afterwards with purging. Towards the afternoon he became lethargic, and slept profoundly several hours. About midnight he awoke still affected with vomiting and pain in the bowels. During the night he was seized with general convulsions. A medical man, who saw him early in the ensuing morning, found him violently convulsed, with the pupil dilated and insensible, and the pulse slow, small, and irregular. Coma soon succeeded, and death took place twenty-two hours after the drug was swallowed. On examining the body, the external membranes of the brain were found much injected with blood, and the inner coat of the stomach was red in some parts. But the other organs were in a healthy state. The prisoner Evans was found not guilty, the judges being of opinion, that, as the friends of the deceased applied for his advice, the act did not come under the statute regarding manslaughter.

MEDICAL ECONOMY.

Medico-Botanical Society of London.

The first general meeting of the seventh session of this society was holden on Friday the 13th of October at eight o'clock P. M. Sir James M'Grigor, K. T. S. Director-General of the Army Medical Board, President, in the chair.

When the usual business of the society was concluded, a letter from H. R. H. the Duke of Clarence was read, desiring his name to be added as an honorary patron, and regretting that his residence at Bushey Park excluded the possibility of his attendance that evening. The director (Mr Frost) then delivered his oration, in which he congratulated the society on the rapid advance it had made during the last session, and the great benefits it derived from the unwearied zeal which many of its members exerted in its behalf. He also informed the meeting, that their distinguished president " had lately resolved, that no person shall be admitted to an examination to qualify him to practise in the medical department of the army without having attended, amongst other branches of study, lectures on botany for six months, the salutary effects of which regulation will in a few years demonstrate its utility."

Sir James M'Grigor assured the meeting that he was performing but his duty in enforcing the regulation just mentioned, or any other which might in any manner promote the cause in which he was engaged, and which he hoped would be attended with the happiest results; and concluded by moving that the thanks of the society be given to the director, and that he be requested to make his oration more public.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

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NOTICES TO CORRESPONDENTS.

Communications have been received from Drs WILLIAM SMITH, ADRIAN NORTIEZ, Messrs WISHART, HULL, and BAYNES FLETCHER.

The following Publications have been received :—

Observations on the Causes, Symptoms, and Treatment of Derangement of the Mind, founded on an extensive moral and medical practice in the Treatment of Lunatics. By Paul Slade Knight, M. D. &c. London, 1827.

A Syllabus of Surgical Lectures on the Nature and Treatment of Fractures, Diseases of the Joints, and Deformities of the Limbs and Spine; containing descriptions of the modes of applying twelve new apparatuses; illustrated by 12 plates, &c. &c. By James Amesbury, F. S. A. F. L. M. D. London, 1827.

Observations upon the Autumnal Fevers of Savannah. By W. C. Daniell, M. D. Savannah, 1826.

A Physiological Enquiry respecting the actions of Moxa, and its utility in inveterate cases of Sciatica, Lumbago, Paraplegia, Epilepsy, and some other painful, paralytic, and spasmodic diseases of the nerves and muscles. By William Wallace, M. R. I. A. &c. &c. Dublin, 1827.

The Medico-Chirurgical Review, conducted by Associated Physicians and Surgeons, and superintended by James Johnson, M. D. No. 11, January 1827.

The Edinburgh Journal of Medical Science, No. V. Edinburgh, January 1, 1827.

The Philadelphia Journal of the Medical and Physical Sciences, &c. Edited by N. Chapman, M. D.; W. P. Dewes, M. D.; and John D. Goodman, M. D. No. 6. New Series. Philadelphia, 1826.

The Same, No. 7. 1826.

The North American Medical and Surgical Journal. Conducted by Hugh L. Hodge, M. D.; Franklin Bache, M. D.; Charles D. Meigs, M. D.; B. H. Coates, M. D.; and R. La Roche, M. D. No. 6, Published quarterly, 8vo.

An Oration, delivered on Thursday, February 9, 1826, before the Hunterian Society, with Supplementary Observations and Engravings. By Sir William Blizard, Knt. F. R. S. F. A. S. F. R. S. E. &c. &c. &c.

A Letter on the Medical Employment of White Mustard Seed. By a Member of the London College of Surgeons. London, 1826.

An Introductory Lecture to a Course of Surgery, delivered at the Richmond School of Medicine, Dublin, on the 8th day of January 1827. By Richard Carmichael, Esq. M. R. I. A. &c. &c. London, 1827.

Additamenta ad Origines Contagii, Auctore C. F. H. Marx, Dr. Prof. Med. Gottengensi, Caroliruhae et Badae, apud D. R. Marx, 1826.

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De Euthanasia Medica Prolusio qua ad Orationem quam ad Auspicandum Professores manus extra ordinem indulgentissime sibi concessum, die 29 Julii 1826, publice habebit rite invitat C. F. H. Marx, Med. et Chir. Dr Gottingae.

Morborum Definitiones Causaeque Continentes, &c. &c. quibus accedit Toxicologia. Auctore Ricardo Maddock Hawley, M. D. Coll. Reg. Medic. Edinensis Socio. necnon Soc. Med. Edin. Socio Extraord. Edinburgi, apud Guthrie et Tait, &c. 1827.

Observations on the Expediency of Instituting a Friendly Association of the Medical Profession throughout Scotland, for Insuring a Provision during Sickness and Old Age, Widows' Annuities, Endowments to Children, &c. By Edward D. Allison, Surgeon, Leith, Extraordinary Member of the Royal Medical Society Edinburgh, and Medico-Chirurgical Society of the University of the State of New York.

The New York Medical and Physical Journal. A complete set, from No. 1. January 1822 to No. 17. January, February, March 1826.

Conversations on Anatomy, Physiology, and Surgery. By Archibald Robertson, M. D. 12mo. Edinburgh, 1827, pp. 446.

A System of Pathological and Operative Surgery, founded on Anatomy. Illustrated by Drawings of Diseased Structure, and Plans of Operations. By Robert Allan, F. R. S. E. &c. Vol. III. Part II. which completes the work. 8vo. Edinburgh, 1827. pp. 337 to 614.

Jouch. Tscharnkowsky. Diss. Inaug. Med. De Hydrope in genere. 8vo. Petropoli, 1825.

Elogio del celebre Professore di Medicina Gius. Antonio Testa, Ferrarese, del Prof. G. Tommasini, anno dei xl. della Società Italiana. 8vo. Pesaro, 1825.

Magazin der ausländischen Literatur der gesammten Heilkunde; herausgegeben von D. G. H. Gerson, und Dr Nikol H. Julius, Nov. Dec. 1826. Hamburg.

Register des ersten bis zehnten Bandes des Magazins den ausländischen Literatur der gesammten Heilkunde: herausgegeben von Dr Gerson, und Dr Julius, 8vo. Hamburg, 1826.

The Morbid Anatomy of the Human Brain; being illustrations of the most frequent and important Organic Diseases to which that viscus is subject. By Robert Hooper, M. D. &c. &c. Imperial 4to. London, 1826. pp. 36, and 15 plates.

Directions for using the Improved Sliding Scale of Chemical Equivalents; with a short Explanation of the Doctrine of Definite Proportions. By David Boswell Reid, Edinburgh, 1826. 12mo. pp. 26.

Materia Indica; or some Account of those Articles which are employed by the Hindoos and other Eastern Nations in their Medicine, Arts, and Agriculture, comprising also Formulæ, with Practical Observations, Names of Diseases in various Languages, and a copious list of Oriental Books immediately connected with General Science. By Whitelaw Ainslie, M. D. M. R. A. S., &c. 8vo, London, 1827.

Want of space obliges us to postpone the Medical Intelligence.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. APRIL 1827.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*A General View of the Diseases of the Mamma; with cases of some of the more Important Affections of that Gland.* By WILLIAM CUMIN, M. D. Surgeon to the Royal Asylum for Lunatics, and to the Lock Hospital, Glasgow.

SEVERAL causes contribute to render the mamma peculiarly liable to disease. Its situation exposes it to frequent variations of temperature, to painful confinement from dress, and to accidental injuries. It is an organ which is powerfully influenced by the emotions of the mind; and it is connected by close links of sympathy with the whole apparatus of reproduction. To these causes of its liability to disease must be added the alternating states of long-continued activity and repose in which it is placed, as an organ of secretion. The following may be received as nearly a complete enumeration of mammary diseases:—

I. Mastodynia, or Neuralgia of the Mamma.
II. Inflammation of the Mamma, or *Mastitis*.
III. Hypertrophy.
IV. Atrophy.
V. Struma.
VI. Serous Cysts and hydatids in the mammary substance or immediate vicinity.
VII. Fibrous tumour, or Pancreatic Sarcoma.

VIII. Adipose tumour.

IX. Encephaloid tumour, or Fungus hæmatodes.

X. Carcinoma, under which are included both scirrhus and cancer.

I. *Mastodynia* consists in increased sensibility of the mamma, which is sometimes so great that exposure to cold, touching it even gently, or the weight of the bed-clothes, causes excruciating pain. This distressing feeling extends over the whole breast, sometimes over both, and even to the shoulder and arm of the affected side. In the simplest form of this painful affection, the breast often presents no perceptible change whatever, and the disease is wholly confined to the nerves which supply the gland, and the adjacent parts that may happen to be affected; but, on other occasions, one of the lobes of the mamma becomes slightly swollen, and peculiarly tender when touched. Sir A. Cooper has distinguished the disease in this latter state by the name of *irritable tumour of the mamma*;* but the occurrence of partial tumefaction seems to be rather an accidental than an essential symptom of the disease.

A great deal of valuable information on the subject of mastodynia is to be found in the writings of Justamond,† who appears to have been often successful in its treatment. The lectures of Sir A. Cooper contain many interesting facts regarding this affection, and the systematic writers on the diseases of females have generally treated of it among those of gestation.

II. *Inflammation of the mamma* is either acute or chronic. In the former of these shapes it is a disease of frequent occurrence during lactation; and it usually terminates in the formation of abscess, varying in size and situation. Its progress and treatment are sufficiently familiar to practitioners. Allied to milk abscess is the lacteal tumour, which occasionally forms in consequence of the obstruction of one of the lactiferous tubes, and the collection of milk within its cavity, which is sometimes distended in this manner to an almost incredible degree. Vulpi, in his Italian translation of Richter's Anfangsgründe, relates a case of this nature, where not less than ten pounds of milky fluid were evacuated by puncturing the tumour. This morbid dilatation of a lactiferous tube approaches somewhat to the natural structure of the mamma in one species of goat, of which a preparation exists in the museum of Dr William Hunter. The nipple in this animal forms but one large tube, about the size of the finger, and one and a half inch in length. This tube enlarges into a bag capable of containing an orange; and on the sides of the bag a great many short thick tubes open.

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* Lectures of Sir A. Cooper by Tyrrell, Vol. ii. p. 214.

† Justamond's Tracts, 4to, pp. 380, *et seq.*

Chronic inflammation of the mamma is a disease of less frequent occurrence, but it is one of great importance to the practitioner, on account of the resemblance which it bears to scirrhus of the mamma. This disease is distinguished by a hard painful tumour, deeply seated in the mamma, accompanied with a feeling of heat, throbbing, and sometimes with darting pains through the centre of the tumour. If leeches, discutient applications, and a proper regimen are not had recourse to, suppuration takes place; and the skin over the tumour, which was previously of its natural appearance, now becomes red, tense, and painful.*

III. *Hypertrophy of the mamma* consists in a morbid increase of the mammary substance. In such cases the gland acquires a uniform increase of size, so as at length to become altogether monstrous. In the early stages of its progress symptoms of topical inflammation and disturbance of the constitution are sometimes perceptible; but this is by no means uniformly the case. The disease most frequently commences soon after puberty, and the breast has in many cases attained such a size as to render its extirpation absolutely necessary.†

IV. *Atrophy or absorption* of the substance of the mammary gland usually takes place in advanced life, commencing after the catamenia have ceased to make their appearance; and it has been observed by Dr Coindet to be produced by the administration of iodine.‡ I am not aware that this affection occurs as a consequence of that tumefaction of the mamma which succeeds cynanche parotidea, although the analogy of the testicle would lead us to expect it.

V. *Struma of the mamma* appears under different shapes, and in its earlier stages is not always easily distinguished from diseases of a much more formidable description. Sometimes a hard lump forms in the mamma, and remains nearly quiescent for several years; at other times the whole gland is affected with scrofulous enlargement. But in all cases of this disease its tendency is to suppuration; and the purulent matter discharged is always more or less mingled with those curdy flakes which form the principal diagnostic of scrofula. Mr Lloyd relates a remarkable instance, in which the whole of the tumour seemed to have been converted into this curdy deposite.[*]

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* Pearson on Cancer, p. 44.

† Hey's Surgical Observations; Pearson on Cancer; Sir A. Cooper's Lectures by Tyrrell.

‡ Coindet, in Memoirs translated by Dr Johnston, p. 20, near the end of Second Memoir.

In strumous disease there is always an enlargement of the mamma, instead of that contraction which occurs in one form of carcinoma. The tumour is tender when grasped, never possesses the stony hardness which we observe in the disease just named, and there is never, as far as my own experience enables me to speak, retraction of the nipple. Valuable information respecting this disease, particularly its treatment, will be found in the writings of Pearson[†] and Lloyd.[‡]

VI. Both *Serous Cysts* and true globular *hydatids* have been found in the mamma, and in the adipose substance surrounding it. Neither of these formations is of itself dangerous; but there is ground for believing, that they occasionally give rise to other morbid changes of a very serious nature. The cyst by its enlargement produces a condensation of the glandular substance in which it is imbedded, and forms a tumour which sometimes presents characters so suspicious as to render an operation decidedly proper. During the summer of 1825 I was consulted by an unmarried female, respecting a tumour in her breast, which she had first perceived four months previous, since which time it had remained nearly stationary. Almost the whole of the left mamma was indurated and massy, excepting at the upper and anterior part, where fluctuation was distinctly felt. The mamma lay loose under the skin, and could be moved freely on the subjacent parts. A hardened glandular mass was observed in the centre of the axilla. Some pains were felt shooting along the edge of the *latissimus dorsi*, and occasionally down the arm, but none in the mamma. I recommended extirpation of the diseased parts, under the impression that there was scirrhus of a portion of the mamma. This was afterwards done by the gentleman under whose care she had been before she applied to me; and I have since learned, that, when the parts were examined, the mamma proved to be sound, but its substance a good deal condensed; and a very thick cyst was found within it, containing a slightly greenish serous fluid. I saw this individual many months after the operation in perfect health, and the scar of the operation quite sound. The contents of these cysts consist at first of a straw-coloured fluid; but when they have been of long continuance, or perhaps from the accidental effusion of a few drops of entire blood, the liquor acquires a greenish colour, and sometimes a fetid odour. In the year 1819 I assisted at the removal of a mamma, for which the patient had been long under treatment by leeches and discutients. A firm tumour could be distinctly felt in the substance of the gland towards its axillary side, and there was an enlarged absorbent gland in the axilla. The patient suffered lancinating pains in the breast. After removal of the parts, the substance of the mammary gland was found to be unusually firm, particularly around a cyst about the size of a walnut, which was imbedded in it near its axillary border, and contained a turbid, greenish, slightly fetid fluid. There were also found in other parts of the gland small deposites of a similar fluid; but none of them exceeded a pea in size, nor were they provided with any cyst. The texture of the absorbent gland was healthy. The greenish colour and fetor of the contents of these cysts have been considered by some authors to indicate, in all cases, a malignant character; but my own observation does not lead me to believe that such cases are of a truly carcinomatous nature. In general the puncturing of such cysts is not followed by any troublesome consequences; but in one case, which is fresh in my recollection, the cyst sloughed, an indolent unhealthy ulcer succeeded, and the whole mamma became indurated. The safest practice is to remove the cyst, and should it be thickened, and the tumour attended with shooting or gnawing pain, a portion of the sound parts around should be dissected out along with it.

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[*] Lloyd on Scrofula. [†] Pearson on Cancer. [‡] Lloyd on Scrofula.

The existence of a cyst in the mamma is sometimes complicated with other and still more varied changes than the mere alteration of its fluid contents, or the simple induration of the surrounding glandular substance. In such cases the mamma becomes much enlarged, and seems to divide into lobes; a large cavity is felt filled with fluid; the weight of the breast causes turgescence of the veins; the part is more or less painful; and sometimes, though rarely, the glands towards the axilla become tumid. Under these circumstances, extirpation is very properly had recourse to; and when the removed mamma is laid open, its structure is found to be altogether changed in the vicinity of the cyst. Its texture resembles that of boiled udder or liver, or of soft cartilage; and rounded masses of the diseased substance are occasionally seen projecting into the cavity of the cyst, which covers them with its smooth membrane. The progress of this species of tumour is usually at first slow, and the health nearly throughout unimpaired. The following case affords a good example of the disease.

Mrs M'D. aged 24, admitted into the Glasgow Royal Infirmary November 14, 1818. Five years ago, without any known cause, a small tumour began to form in the centre of the left mamma. It was occasionally affected with lancinating pain, which became more severe at the menstrual periods. The tumour of the mamma appears now to be composed of several smaller ones, which are connected to one another. They feel hard and somewhat irregular on their surface, and each is about the size of an orange; the whole forming a very weighty mass, as large as a child's head. It is free from pain even when handled, is moveable on the subjacent parts, and does not adhere to the skin, which is of its natural colour; but the superficial veins of the breast are extremely turgid. In the axilla is an enlarged gland, which has always been free from pain. Health good; functions natural. She is now in the sixth month of pregnancy, and she has had three children since the complaint commenced.

On the 17th November the whole tumour was removed, along with several enlarged axillary glands, which did not appear otherwise diseased. The tumour consisted of a number of smaller ones, with a cavity in the centre filled with serous fluid, into which many of the tumours projected. Most of them presented the firm cartilaginous texture and membranous bands of scirrhus; others resembled boiled liver; and two or three vesicles filled with an amber-coloured fluid were seen half sunk in the scirrhous-like substance. The solid portion of the tumour and the skin covering it weighed 57½ ounces; besides which there were two ounces of sound mamma removed. A slight accession of symptomatic fever followed the operation, but the uterus showed no tendency to expel its contents: everything went on well, and she was dismissed cured on the 11th December. I have learned that this individual was in perfect health, without any appearance of a return of the disease, not many months ago.

It is stated in the account of the dissection of the extirpated parts, that most of the tumours presented the firm cartilaginous texture and the membranous bands of scirrhus; but in doing so I merely compared the morbid structure to what it seemed most closely to resemble. I would not, however, be understood to assert, that the disease was of a strictly carcinomatous character. It certainly would be difficult to assign the true designations to the solid parts of this tumour; but it is sufficiently obvious, that it was of a compound nature, and contained specimens of more than one morbid structure. Had any circumstance caused the bursting of the cyst, and thrown the cavity into ulceration, there cannot be a doubt that a train of highly formidable symptoms would have ensued, and in all likelihood death would soon have closed the scene. It is probable that fungous growths would have been speedily thrown out, and that the ulcer would have assumed the same character as in the cases (Nos. 2 and 3) detailed by Mr Hey under the head of *Fungus Hæmatodes.* *

The case of Mrs M'D. corresponds exactly with the description given by Sir Astley Cooper of what he has named *encysted tumour of the mamma.* He considers it as always of a benign character, and never liable to return after extirpation. Of the truth of the latter part of the opinion I am well convinced; but I am disposed to think, that wherever so great a change of structure has taken place as that now described, there is strong reason to fear that the occurrence of ulceration, to which we must ultimately look, will be followed by the production of fungus, with all its destructive consequences.

VII. *Pancreatic sarcoma of the mamma.*—Mr Abernethy, to whom we are indebted for the introduction of this term, states that this species of tumour bears a close resemblance to the pancreas in its composition, colour, and texture. Perhaps it would have been better had that eminent surgeon endeavoured to describe its characters without so continual a reference to this similitude; for it is difficult to be believed, that any newly formed morbid substance will be found, when carefully examined, to resemble thus exactly any gland in the human body. M. Bayle appears to me to have described this species of tumour with great discrimination and accuracy under the title of *corps fibreux.* According to the writer just named, these fibrous bodies present themselves in three different and successive states: 1st, a fleshy state; 2d, a fibro-cartilaginous state; 3d, an osseous state. * It is proper to mention here, that the description of M. Bayle refers, in an especial manner, to those fibrous tumours which are formed in the human uterus. As an instance of the pancreatic sarcoma in its first stage, I may mention a small fleshy tumour which I removed some years ago from under the conjunctiva of a young lady's eye-lid. It was composed of many granules connected by cellular tissue, and enclosed in a thin capsule. Cases of the same species of tumour occurring in the mamma have been given by Mr Abernethy and Sir A. Cooper, the latter of whom names it the *simple chronic tumour.* The following is a case of fibrous tumour of the mamma which occurred to myself. But in this instance the newly formed substance was situate, not in the mamma, but behind it.

November 5, 1823.—Mrs C., aged 22, had a miscarriage fifteen months ago, at which time milk was observed in the breasts. The left breast soon after this began to swell, and a tumour of a small size appeared upon it, which assumed a purple colour, and seemed to contain fluid. This tumour, after some time, subsided, and the mamma continued to increase in size. It is now at least four times as large as the right breast, heavy and knotted, but nowhere of a stony hardness. The skin possesses its natural colour and softness, but it is occasionally of a purple hue, and is slightly œdematous. Numerous dilated veins of great size are seen on the surface; and, near the nipple, an artery like a crow-quill is felt pulsating strongly. One or two indurated glands are felt in the axilla, but they are not much enlarged. There is no swelling of the arm. The breast is not painful unless when squeezed, but it produces a distressing sense of weight. Mrs C. is at present in the fifth month of pregnancy; previous to which the appearance of the catamenia was always preceded by an increase of size in the breast; it then diminished, and when the menstrual flow had ceased, the breast again acquired its former size. Her general health is tolerably good, but she is of a pallid strumous aspect. On the 11th November I extirpated the entire mamma, together with a large tumour which lay behind it, a considerable portion of skin, and several of the axillary glands. Five or six arteries were tied; but the extent of surface left by dissecting out the tumour and glands was very great, such indeed as to lead me to fear subsequent hemorrhage. The tumour which lay behind the mamma was found to be of a firm, uniform, and somewhat fibro-cartilaginous texture, distinctly organized, and composed of many lobules enfolding one another, and connected by loose cellular tissue. The mamma was connected by loose cellular membrane to the tumour, and that to the subjacent muscular substance by the same tissue in a perfectly healthy state. The absorbent glands when divided showed no morbid change of structure. After twenty-eight hours the parts removed weighed two pounds, and the tumour alone one pound four ounces. Early the next morning I was called to my patient on account of bleeding from the wound. When the dressings were removed, the edges of the incision were found so firmly adhering for a great extent, that it was necessary to use a probe to separate them. A large clot within adhered very closely to the contiguous parts, and when it was removed, I observed in different spots masses of coagulable lymph of the size of peas. Only one small artery was secured, and the parts placed in apposition as before. The delicacy of the patient's constitution, and the severity of the operation, rendered her recovery slow; but on the 1st of December the wound was healed to a point. I had an opportunity of seeing this individual more than a year afterwards, and of hearing of her not many months ago. The cicatrix had remained sound, and no new tumour had formed in its vicinity.

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* Hey's Surgical Observations, pp. 260—265.

† Bayle's Dict. des Sciences Medic. Art. Corps Fibreux.

Under the head of *fibrous tumours* of the mamma I would include those cases in which that organ has become converted into bone. Sir A. Cooper * has named it the *ossific tumour*, and related a case of fourteen years' duration, in which the tumour, when removed, was found to consist partly of cartilage and partly of bone. In the case of Mrs C. just detailed, the change into cartilage had already commenced; and, in the instance given by Sir A. Cooper, cartilage was fully formed, and a considerable part of it was converted into bone. In the *Miscellanea Naturæ Curiosorum* † there is to be found a case of complete ossification of both mammæ. It occurred in a nun, who suffered much from distressing dyspnœa, and from the continual fear that her breasts were becoming cancerous. The mammæ were as hard as a piece of board or stone, and the skin was stretched over them like the hoops round a barrel. Medicine proved of no avail in delaying the fatal termination. After death, the mammæ were found changed into hemispheres of bone, so hard as to resist completely the scalpel. The thoracic cavities were filled with clear fluid, which spouted forth when the chest was perforated. Although I am not entitled to assume, that in these and similar instances the change into cartilage and bone was effected by the previous step of a soft pancreatic or fibrous tumour, yet it is probable that this actually took place; for I have shown that fibrous tumours do occur in or near the mamma; and, from the observations of M. Bayle, it appears that ossification is the last stage in the progress of these new formations.

Nearly allied to ossification in the mamma are those earthy deposites which have been occasionally met with in that gland, more particularly in persons of a gouty habit.

VIII. *Adipose tumour of the mamma.*—The mamma is naturally surrounded by a considerable quantity of fat; and in some cases a large collection of this substance has taken place around it, or between the gland and the muscles of the chest. The nature of such a tumour will be readily ascertained by a careful examination, when the peculiar lubricity of the swelling and its equal softness will point out its true character. ‡

IX. *Fungus hæmatodes, or encephaloid tumour of the*

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* Lectures, by Tyrrell. † Mis. Nat. Cur. Dec. ii. An. vi.

‡ Dict. des Sciences Med. t. xxx. p. 401, and Cooper's Lectures by Tyrrell.

Mamma.—The occurrence of destructive fungous disease in the mamma is established beyond all question by a variety of well authenticated cases; * but there is some reason to doubt whether the true encephaloid or cerebriform deposite has been met with in that organ. In Mr Hey's cases the tumours in the mamma are said to have presented a diseased glandular structure, intermixed with small cavities, containing a gelatinous or viscid serous fluid. † And in those which occurred to Mr Wardrop, it is stated, that "when the tumour was divided the whole surface was immediately covered with a transparent glairy fluid, which exuded from numerous small cells interspersed every where through the tumour." ‡ The able surgeon just named has expressed strong doubts of the existence of true fungus hæmatodes in the mamma. Sir A. Cooper has considered, at some length, the fungous or medullary tubercle of the mamma; § but, from the general view which he has taken of this disease, as it affects the different organs of the human body, it does not appear that he has himself seen the cerebriform deposite in the mamma. Several circumstances stated by this distinguished surgeon, in regard to the fungous disease of the mamma, induce me to think that it differs in some respects from the true encephaloid tumour. After describing the sloughing which sometimes occurs in the fungous disease, he informs us that "Mr Cline had a case in which the tumour sloughed away, and the wound healed, after which the woman was discharged from the hospital apparently cured." || This is altogether different from what is known to occur in cases of true fungus hæmatodes, where sloughing no doubt does take place, but is never, I believe, followed by complete cicatrization. He has also stated, that in the fungous disease of the mamma, the axillary, cervical, and internal mammary glands are rarely affected; and that he has known a person die of the disease without the axillary glands being affected. ¶ When we compare this statement with what Mr Wardrop has related ** respecting the condition of the absorbent glands and vessels in cases of true fungus hæmatodes, and with what, indeed, all of us have witnessed in such cases, we shall be led to believe that a difference does exist between the two forms of fungous disease.

It appears, then, that the fungous tumour of the mamma possesses certain peculiarities which serve to draw a line between

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* See Hey's Surg. Observ. and Cooper's Lectures by Tyrrell.

† Hey's Surg. Observ. pp. 267, and 270.

‡ Wardrop on Fungus Hæmat. p. 175.

§ Sir A. Cooper's Lectures by Tyrrell, p. 202.

|| Lectures by Tyrrell, p. 204.

¶ Ibid. p. 204.

** Wardrop on Fung. Hæmat. pp. 105—129.

it and the true encephaloid disease. When I compare what Sir Astley Cooper has said of the *fungous tubercle* of the mamma, with his account of the *encysted tumour* of that organ, where the surrounding glandular substance has undergone a morbid change, I cannot perceive any well-marked points of difference between them, excepting such as may reasonably be ascribed to the more aggravated form or advanced stage of the disease in those cases related under the title of fungous tumour. He attaches, in particular, much importance to the colour of the fluid contained within the cavity of the fungous tumour, which he describes as bloody serum somewhat changed in colour. "It leaves a yellowish red stain on paper, and readily coagulates by heat."[*] Now nothing is more likely than that the fluid, when first effused, is of a pure serous character, and that it acquires its subsequent change of colour from some accidental effusion and admixture of red particles. I was particularly struck, on comparing the passage just quoted with the report of Sir A. Cooper's lectures given in the Lancet, to find that the lecturer is reported to have said, "the fluid in the cyst of fungus hæmatodes is sometimes perfectly transparent, being much more clear than the serum of hydrocele."[†] But other writers have stated the same fact. Thus, in one of Mr Wardrop's cases, it is said, "some of the cells were filled with a serous-looking fluid, others with a fluid tinged with blood."[‡] Having lately had occasion to look into the collection of cases by F. Platerus, the celebrated professor of Basle, I found one which may serve to throw some light on the subject now under consideration. It possesses a peculiar interest, as it presents an instance of the cerebriform deposite being found in a tumour of the mamma, and may, therefore, be considered as tending to remove the doubts which I expressed in the commencement of these remarks on fungus hæmatodes. The case is entitled "enormous scirrhous and cancerous tumour in the mamma, which discharged a great quantity of sanious fluid, and from which *tophi* were removed."[§] It was one of long duration; at length the mamma became so much enlarged that it could scarcely be contained within a common bushel measure: it now burst spontaneously, and discharged a pint (*mensura*) of bland white viscid fluid, resembling the white of egg. This was followed by the flow of a large quantity of a very irritating liquid, of a clear yellow colour, which was occasionally mixed with clots of blood. During the progress of the case, the opening in the tumour was largely dilated; and Plater states that the lips of the incision resembled in colour and texture the uterus of a cow. Sometime after this two pounds and upwards of a morbid mass, which had the appearance of bacon, were cut away; and from the neighbourhood of the axilla a quantity of putrid flesh, resembling brain, (*cerebri substantiæ similis,*) was removed by the fingers. After these operations, and the removal of an excrescence on one of the ribs, the wound was almost completely cicatrized. But before a year had elapsed, the tumour returned, and gradually attained the size of the head; and on its surface two smaller tumours arose, each of them as large as the head of a young child.

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[*] Lectures by Tyrrell, p. 203.

[†] Lancet, Vol. i. p. 741.

[‡] Wardrop on Fung. Hæmat., p. 138.

[§] Fel. Plateri Observat., p. 530. 12mo. Basil, 1641.

Here we have the mamma enlarged to an enormous size—an immense cyst opening, and discharging a quantity of viscid fluid—the tumour composed of three different textures, which are described as resembling the uterus of the cow, the fat of bacon, and brain. This case appears to me to exhibit the progress of the *encysted tumour* when allowed to proceed under the application of external remedies only; and to point out, in a striking manner, the near alliance of that species of tumour to fungus hæmatodes.

X.—*Carcinoma of the mamma* may be divided into two species, 1st, *C. tuberculosum;* 2d, *C. œdematodes.* The characters which distinguish the first species of carcinomatous tumours of the mamma in their early stage are, stony hardness, usually an irregular surface, insensibility to pressure, unless when the skin covering them is inflamed, and stinging or lancinating pains. The mammary gland is generally shrunk and condensed; and the nipple, from the effect of this contraction on the milk tubes, is at length drawn inwards and sunk beneath the level of the skin. Dissection at this period exhibits a semi-cartilaginous deposite, with shining bands traversing the morbid substance. After the disease has proceeded to ulceration, the characters of the cancerous ulcer are an excavated surface, with hard everted margins, and sometimes firm cauliflower like excrescences; there is also gnawing or lancinating pain, but no tenderness of the ulcerated surface when touched.

The second species is more alarming in appearance, and usually more rapid in its progress than the first; and it seems to be irremediable either by medicine or surgery, unless attacked in a very early stage indeed. From the remarkable œdema by which it is accompanied, I would propose to name it *carcinoma œdematodes.* It was long ago well described by Justamond, whose knowledge of cancerous diseases has not, I think, been duly appreciated by the medical profession.* Other English writers have referred to this form of the disease, but in a very cursory manner. The Baron Boyer has briefly detailed its symptoms with his usual ability.† In order to illustrate its nature, I shall now narrate two cases—one of a highly aggravated character, the other less rapid in its progress, but not less malignant, and both terminating fatally, I believe, from the same cause, serous effusion into the chest.

In the year 1818 the following case of œdematous carcinoma of the mamma came under my care in the Glasgow Royal Infirmary.

Isabel Mitchell, a married woman, aged 31.—Her left breast was swollen, and of a stony hardness, but when long pressed it pitted under the finger. The skin of the breast was of a dusky purplish hue, and exhibited the pores and lines on its surface very greatly enlarged. The whole of the left side of the trunk, and the left arm to the finger points, were highly œdematous. There was frequent short dry cough, with dyspnœa, and she complained of occasional darting pains in the back part of the mamma, as well as of pain under the left scapula, increased by deep inspiration. Appetite impaired; thirst urgent; urine scanty. Tongue chopped, and of a dark red colour. Pulse 100. Copious perspirations; sleepless nights. About three months previous to her admission, she had exposed herself to cold while perspiring, and was in consequence seized with darting pain in the left breast, followed soon after by cold shivering. The mamma immediately began to swell, and enlarged with extreme rapidity. In two months the swelling had attained nearly the size in which it was when I first saw her. Leeches, diuretics, diaphoretics, and various external applications, were used without any relief. The swelling increased and extended upwards on the neck, and in twelve days after her admission she died. On inspection the skin of the mamma, when divided, was found to be thickened and hard, filled with pale fluid, which did not flow out rapidly as from the œdematous skin of the arm. The mammary gland, which adhered firmly to the contiguous parts, was of a very compact and hard consistence, approaching to that of cartilage. A good deal of serous fluid could be pressed from its substance. The greater pectoral muscle, from its origin to its insertion, was hardened, pale, and of a ligamento-fibrous texture. The enlarged glands in the axilla adhered closely to the contiguous parts, and their texture still more nearly approached to that of cartilage than the mamma. The right pleura contained forty ounces of serous fluid, the left presented very general adhesions. The lungs were not diseased, and the pericardium contained a small quantity of serous fluid.

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* Justamond's Tracts, 4to. p. 374, *et seq.*

† Boyer, Mat. Chirurg. T. vii. p. 223.

In the same year J. Macnab, a widow, aged 53, came under my care in the same institution, on account of a tumour of the left mamma, which had commenced eight months before, without any known cause. It affected at first the axillary side of the breast, appearing like a thickening of the skin, and afterwards extended to the whole mamma, which, on admission, was weighty, firm, pitted on pressure, and seemed moveable on the subjacent parts. It had been, for two months, affected with lancinating pains. The breast now formed a large tumour, preserving its natural form, excepting on the outer side, where it was more prominent. The skin covering it was red and glossy, perhaps in part from the frictions used for the relief of the complaint; and there was a superficial ulceration round the nipple, from which a clear fluid exuded. Two enlarged glands in the axilla. Pulse 96; tongue white; urine rather scanty; but looks and appetite still good.

Unfavourable as this case appeared, it was resolved in consultation that extirpation should be performed as a last resource. But it was soon apparent in the progress of the dissection, that the whole of the diseased parts could not be removed by the knife. The morbid change had pervaded the pectoral muscle, to which the tumour adhered with firmness. The skin, fat, and mammary gland, were reduced to one mass of solid œdematous substance; and the fasciculi of the greater pectoral were pale and indurated. The wound of operation continued to heal for three weeks, when it became stationary, the granulations were then absorbed, and the edges became tucked in, with swelling and hardening of the surrounding skin. After some time tubercles made their appearance in the integuments around the wound; the swelling and induration increased; symptoms of inflammation and effusion within the chest showed themselves; and, after about two month's stay in the hospital, she returned home and died.

I have lately seen another case of the same species of tumour, although presenting some variety of character, in which both mamma were affected. Its progress was slow, and the patient was at length cut off by scirrhus of the rectum, which terminated in ulceration, and the effusion of the contents of the bowel into the abdominal cavity.

A remedy for cancer is still vainly desired by the members of our profession; and it is now even a question with many eminent men, whether extirpation of the diseased part is of any avail in protecting the individual from its attack. The

Baron Boyer has said, "of more than a hundred individuals affected with tumours, considered as cancerous, in the breast and other parts of the body, on whom I have performed extirpation, I have seen only four or five who have been radically cured. In the others, the disease has reappeared after a longer or shorter interval, and has ultimately proved fatal."* The statement which is here made respecting the period and mode in which the disease returned, is so vague that we are entitled to conclude, that in some at least of these cases the second occurrence of cancer had nothing to do with its first appearance. And in many of them I have no doubt the patients enjoyed an immunity from disease and suffering, for such a length of time, as to furnish more than an adequate reward for the pain and danger of an operation. But, setting both of these considerations wholly out of view, we have here the evidence of an eminent surgeon, not by any means partial to the operation, in proof of the fact, that four or five per cent. of acknowledged cases of cancer have been radically cured by extirpation. Even this small proportion of successful cases is sufficient, I think, to make it our duty to perform extirpation in the early stage of cancer; and the fact ought to encourage us to investigate, by every means in our power, the nature of that peculiarity in cancerous tumours, which renders certain cases of the disease curable by extirpation; while others, which, in the present state of our knowledge, appear not more advanced, are already beyond the reach of surgery.

The following case seems worthy of being recorded, from the light which it appears to throw on some of the frequent instances of the return of cancer after extirpation. In June 1823 I was consulted by a married woman of 60, on account of an excavated ulcer with slightly everted edges, capable of containing the half of a small orange, situated a little above the left mamma. The surface of the sore was of a livid red, and nearly regular, excepting on the left side, where there was a rounded granulating protuberance, about the size of half a small plum. The parts around were hard but not stony; and there was a swelled gland in the axilla. She felt darting and stinging pains in the ulcer and vicinity, but the raw surface was not at all tender. The disease began as a small tumour eighteen months previous; it enlarged, and five months ago burst, discharging a bloody fluid, and afterwards a black core separated, leaving the present ulcer. Finding that the ulcerated and hardened parts could be moved pretty freely in those beneath, I availed myself of the opinion of a valued friend, in whose long experience and correct judgment I had perfect confidence;

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* Malad. Chirurg. T. vii. p. 237.

and with his concurrence I extirpated the diseased parts, a portion of the pectoral muscle, and two enlarged absorbent glands. The parts forming the wall of the excavation, and one of the glands, possessed a well-marked semi-cartilaginous texture, and the tubercular projection into the sore was wholly formed of the same substance.

On the seventh day after the operation I was much distressed to observe, that the wound had opened near its centre for about two-thirds of an inch, exposing two firm pale granulations of a most inauspicious appearance. I now regarded my patient as beyond all hope, being convinced that the cancerous affection had again distinctly shown itself, and that it would now proceed with destructive rapidity. Next day I resolved to try what a free application of lunar caustic would accomplish, that I might, if possible, heal up the sore, and send my patient to her home in the country. The success of this treatment far exceeded my most sanguine expectations. In little more than a month from the date of the operation the wound was entirely healed without any remaining hardness, and her health was good. I have seen this person repeatedly since, and have found the cicatrix perfectly healthy.

A somewhat similar case occurred to Mr John Hunter. He had removed a cancerous tumour of the breast; and during the healing of the wound, which was tedious, a small knot appeared on the edge of the skin, not much larger than a pin's head, and in two days a second was observed. Mr Hunter destroyed them both by caustic; the whole healed favourably, and remained sound, the woman dying seven years after of a dropsical complaint.* Such cases are worthy of being recorded, that surgeons may be encouraged to adopt the same mode of treatment in similar circumstances, not indeed with the hope that it will often prove effectual, but that it may be the means of saving a few individuals, out of many, from the ravages of this melancholy disease.

Glasgow, 13, *Gordon Street*,
25th Nov. 1825.

ART. II.—*On the Fevers of Spain*, &c. By T. PROUDFOOT, M. D. Kendal. (*Continued from* p. 44.)

On the Autumnal Endemic Fever, and Yellow Fever as it occurs in Spain.

ABOUT the end of August, or beginning of September, the character of every description of fever in Spain generally undergoes a very remarkable change. At this period, however, they vary not more from the preceding varieties than from each other, according to the high or low temperature, velocity of current and purity, or stagnant and impure state of the atmosphere; the elevation and dryness, or low, level, swampy, and rank nature of the soil, the acclimation or non-acclimation, and the age, temperament, and habits of those affected. Thus, as long as the temperature of the atmosphere remained steady, however high the range of the thermometer, and the situation was high and dry, at a distance from all swamps and marshes, the summer fever changed by insensible degrees into what is sometimes called *bilious continued fever*: that is, a fever with occasional partial morning remissions and morning exacerbations; but exhibiting very rarely any distinct remissions or intermissions, implicating the brain scarcely so prominently as in the summer species, involving more manifestly the abdominal viscera, particularly the liver and stomach, and deranging the functions of the whole alimentary canal. The genuine summer fever was of a violent, but an open character. That now under consideration was apparently more moderate, but more masked and insidious in its attack; more prone to abdominal, and less to cerebral congestion, more irregular in action, and more deeply ingrafted in the system; and although not more dangerous, if by chance both had unavoidably run a spontaneous and unchecked course, it was yet less easily eradicated, less amenable to the use of remedies, and the direction of the curative process was always much more complex and difficult.

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* Home on Cancer, p. 69.

The vomiting in the *ardent or summer fever*, (*synocha,*) apparently arose from the stomach sympathizing with the deep affection of the encephalon; for generally the one seemed to bear a certain proportion to the other. This principle of sympathy between the brain and stomach is well exemplified in fractures of the skull and in other injuries of the head, disturbing the functions of the brain and nerves, and occasioning immediate vomiting, as well as by cold water, in particular states of the system, taken into the stomach, producing instantaneous death through the intervention of the brain and nerves, and by the rapidly fatal effects of various poisons taken into the stomach, which it is quite unnecessary here to enumerate. As the season advanced, an affection of the stomach, bowels, and liver, often appeared simultaneous with, and sometimes antecedent to, that of the brain. Cases of cholera, diarrhœa, and dysentery were also prevalent at this period, and seemed for the time to be equivalent to an attack of fever, as I do not remember many instances where an immediate attack of fever followed a complete recovery from any of these diseases. In most cases, an attack of any of these diseases could be distinctly traced to the usual causes; such as checked perspiration, either from a sudden diminution of the temperature of the atmosphere, or individual exposure to a partial current of cool air, while copiously perspiring after violent exercise; to irregularities in diet; and to the immoderate use of fruit. These diseases also seemed referable occasionally to violent, or even brisk exercise after a full meal, interrupting the digestive process, and engendering crudities in the stomach and bowels, their contents remaining indigested, and perhaps allowed to run into a kind of fermentation and chemical combination. It is foreign to the scope of this paper to take any farther notice of these diseases, than to show the kind of analogy that exists between them and the bilious continued fever then prevalent. Bilious diarrhœa and dysentery occasionally seemed to stand in the relation of cause and effect, in respect to this fever, and were so intimately complicated with it, that we were sometimes left to doubt to which class the disease more properly belonged, till something farther was developed in its progress; nor was this much to be regretted, as the principles of treatment were nearly the same. Independent of other diagnostic symptoms, a knowledge of the seat of the local affection was sometimes of use in determining the real nature of the disease, and in directing our practice—the superior abdominal viscera being chiefly affected in fever—the liver and small intestines in bilious diarrhœa, and the lower portion of the alimentary canal—the large intestines in dysentery. Perhaps it has been too much the fashion of late, when treating of autumnal diseases, to regard the liver as the main seat of disorder, and refer them too exclusively to marsh miasmata, and to search for occult and unknown states of the atmosphere, while the true and simple causes have met with a proportionate degree of unmerited neglect.

It has often been remarked in warm climates, and the remark accords with what I have observed in Spain, that in those who resided any length of time on the banks of rivers, particularly such as are apt to overflow their banks, or on low marshy rich grounds, the fever almost always assumed the intermittent type, among natives and all those accustomed to the climate; while in those who had lately arrived from a colder or healthier district, and who were similarly exposed, the fever was of a remittent character. Further, if to the ordinary febrile cause, which, under such circumstances, we presume to be marsh miasmata, accessory aggravating causes were added, such as intemperance and night exposure, the fever was not unfrequently so violent as scarcely to show any remission, and sometimes no remission whatever, but appeared in a continued concentrated form, and occasionally proved fatal in three or four days, accompanied with burning heat in the epigastrium, yellowness of the skin and eyes, and almost incessant vomiting of a dark coffee-coloured fluid, particularly towards the termination of the disease. This was the genuine yellow fever occurring in those most liable to be attacked, while the majority escaped so severe a visitation;—a higher temperature, or a more stagnant state of the atmosphere, allowing the marsh poison to be more concentrated and virulent, being required to render it the prevalent type.

As the summer fever occasionally merges into other varieties, so, on the other hand, in the insalubrious, low, marshy, confined situations near the sea, the concentrated form, or yellow fever, was occasionally observed to co-exist with milder forms of the disease. At Carthagena, for instance, in 1812, when the yellow fever became epidemic, its sway nearly universal, and the mass of the population were laid prostrate before its baneful influence, there were found some whose constitutions resisted altogether the effects of the poison, others who were slightly indisposed, and individuals who had the disease in an intermittent or remittent form. When the epidemic subsided, it was supplanted by cases of diarrhœa, dysentery, and intermittent fever. In Spain and in the Mediterranean, in certain unhealthy situations, instances may be found every autumn, of yellow fever, in those particularly predisposed, occurring at the same time and place with aggravated cases of bilious remittent fever; nor are instances of the same kind wanting even in our settlements in North America, where the concentrated marsh fever is called the "lake fever;" and I believe the same thing happens all over the world, under a similar concurrence of circumstances, where the country is generally covered with wood, and swamps, and the heat great.

It never fell to my lot to witness yellow fever as an epidemic, except at Carthagena in the autumn of 1812, when it prevailed to such a degree as to induce the greater part of the inhabitants to leave the town, while most of those who remained were seized with yellow fever; and I was informed that about two thousand inhabitants fell victims to it from the end of August to the beginning of December. Carthagena is particularly exposed to noxious exhalations, especially during seasons of great heat and drought, from partially dried tanks, docks, mast-ponds, and extensive marshes, with rank vegetation in its immediate vicinity. Its situation also in a kind of large amphitheatre, nearly surrounded by hills, with an estuary running up to the town in an indented or zig-zag manner, prevents it from being ventilated by the sea breeze, or even exposed to the ordinary currents of the atmosphere, like a town situated on the sea shore, or in an open country; and hence, perhaps, it admits of the utmost maturation and concentration of the marsh poison that can well be imagined. Carthagena was garrisoned by the second battalion of the 67th regiment, a part of De Watteville's regiment, with a proportion of staff and artillery, in all perhaps about 1500 or 1600 men. The troops arrived at Carthagena in February 1811 from Cadiz, and, with the ordinary occurrence of intermittent fever and dysentery, kept pretty healthy till the month of September 1812.

Cases of synocha or summer fever had occurred in the hot months of June, July, and the beginning of August, when the thermometer of Fahrenheit generally ranged from 80° to 90°, and sometimes 100° in the shade, in the greatest heat of the day. Early in August 1812 part of the troops in the garrison of Carthagena embarked at Alicant, and joined the army lately from Sicily. During the short period those troops remained with the army in the province of Valentia, their sallow cachectic appearance showed that they had come from an unhealthy district. Cases of intermittent and remittent fever were frequent among them; while the rest of the army remained comparatively free from fever of miasmatic origin and periodic type. These men were ordered to return to Carthagena about the end of August, the period at which the fever generally begins to alter its character. As soon as the troops debarked at Carthagena, the number of sick increased daily; and accordingly the Spanish physicians were consulted, and visited the British hospitals in company with Dr Wright, physician to the forces. These physicians immediately pronounced the disease to be the epidemic *Fiebre Amarilla*, or yellow fever; and, I understood, considered it as imported from Africa, for I was not present. The supposition of importation, however, was on this occasion wholly gratuitous; for, on proper inquiry, no foundation appeared for entertaining any such notion.

On the 2d of October I received an order at Alicant to embark immediately on board a British sloop of war, that had come expressly from Carthagena for medical assistance. I arrived at Carthagena on the 4th of October, and on the following day received on board an old Spanish seventy-four, previously fitted up for the purpose, and moored in the spacious harbour or estuary, perhaps a mile from the town, about seventy-three of the worst, selected from the whole of the sick in the garrison, previously accommodated in temporary hospitals along the beach; for the troops had been withdrawn from the town. I am sensible that, at this distance of time, these circumstances have lost much of their original interest; and they are mentioned only to convey a correct notion of the kind of cases under consideration, and the opportunities of observing a disease still possessing no ordinary interest. Three of these cases died on the evening on which they came on board, two on the following day, and, in the course of a few days more, twenty-three of the original number. The morbid appearances were carefully examined in all, as well as in those that died afterwards. The whole of the bad cases that occurred among the troops belonging to the garrison were sent on board this hospital ship, where I remained the whole day, and slept on board every night till the 21st of December, when the epidemic ceased. A transport, partially fitted out as a hospital ship, lay at anchor at a convenient distance, to which convalescents were sent under the care of an hospital assistant. There was only another medical officer belonging to the garrison that was not suffering from the effects of the epidemic. About four hundred and seventy cases of yellow fever fell under my immediate care on board the Spanish man of war, and belonging to transports lying in the harbour or estuary; of this number seventy-six died. This was exclusive of women and children who remained in the temporary hospitals, and in huts along the beach, and on the hill on the western side of the harbour or estuary, who always received as much of my professional attendance as my other avocations would permit. The mortality among them was great. It was stated to the Army Medical Board, by the senior medical officer present, that "there were admitted into the hospitals, including those that had relapsed after having been discharged, 1278, of whom 136 died" during the period alluded to. It is obvious, however, that there could not have been 1278 cases of yellow fever, or the mortality would have been much greater; neither do I suppose this was the notion intended to be conveyed. The cases of yellow fever were chiefly conveyed to the hospital ship; the others were principally cases of intermittent and remittent fever, diarrhœa and dysentery, &c.

Among the officers who died of yellow fever, were Major-General Ross, the commanding-officer, and Dr Wright, physician to the forces. A few days after my arrival, I was requested to see Dr Wright, who had been some time ill. Hiccup, subsultus tendinum, and black vomit were then the predominant symptoms. He was as yellow as saffron, and died on the following day. The only officer under my immediate care was the late Major Howard of the 70th regiment, who had been aide-de-camp to General Ross. The disease in Major Howard was at first continued and violent, accompanied with great prostration of strength; unquenchable thirst; a burning heat in the epigastric region, which was exquisitely painful on pressure; and most distressing and almost incessant vomiting, at first of bilious matter, then of a glairy fluid, in great quantity, streaked with dark grumous blood. From the beginning the remedial measures were of the most decisive kind, yet he was in the most hopeless condition. The fever became remittent on the seventh day, and in a few days more a tertian intermittent, which continued for several weeks, and ultimately yielded to the *liquor arsenicalis.*

There is scarcely any other disease that admits of being divided into a greater number of forms and varieties than that under consideration; but it is extremely doubtful if such distinctions are conducive, at all times, to practical utility. On the contrary, it is believed that they are often so nice, fanciful, and arbitrary, that they tend rather to embarrass investigation than to facilitate our acquaintance with the intimate nature of disease. I have already attempted to describe the manner in which the summer fever passes by imperceptible degrees into what is sometimes called bilious, continued, or gastric fever. I believe it in like manner to be very difficult, in many instances, to point out the precise line of demarcation between those fevers called gastric, bilious, continued, or autumnal remittent, and that denominated yellow fever; for in the aggravated and fatal cases they are accompanied with the same anguish in the epigastric region, yellowness of the skin and eyes, and occasionally the black vomit, hemorrhage from the tract of the alimentary canal, and all the other symptoms characteristic of yellow fever. The yellow fever frequently begins as a mild intermittent. The prevalence of the latter all over the Peninsula requires to be particularly noticed, and may be estimated from the statement of Sir James M'Grigor in the sixth volume of the Medico-Chirurgical Transactions of London. In the short period of two years and a half no fewer than 22,914 cases of intermittent fever were admitted into the regimental hospitals, of which only 291 died. During the same period there were admitted 3961 cases of remittent fever, of which 150 died. In 1812 there occurred 13,759 cases of intermittent fever; in 1813, 8,203; and to the 24th of June 1814, 952.

This distinguished physician accounts most satisfactorily for the numerous cases of intermittent fever which occurred in 1812. " Almost the whole of the army passed over this year into the Alentejo and Estremadura, the soil of which is at all times so fertile of this disease; indeed there are not many parts of Portugal where it is not endemic. It is particularly so about Elvas, Badajos, along the sluggish banks of the Guadiana, in the line of our hospitals, at Alta de Chaô, and on the banks of the Tagus, at Abrantes and Santarem. So common is ague in many parts of Spain and Portugal, that the inhabitants do not term it a disease. Infants at the breast are frequently seen with it."

With this army I had not then the honour to serve; and I introduce the quotation from this most interesting and valuable paper for the sake of remarking, that intermittent fever was by no means so prevalent in the army on the eastern coast of Spain as it appears to have been with the grand army, nor so frequent as the spring and summer fevers already described, or some of the other varieties alluded to in this paper. Various reasons may be assigned for this comparative exemption from intermittent fever. Doubtless the services of the two armies cannot be compared; but this alone would be insufficient to account for the difference, for, though the services on the eastern coast were not so brilliant, they were often extremely harassing and fatiguing. The regiments were chiefly composed of old soldiers, at least such as had served some time in the Mediterranean, and had become accustomed to the climate. Besides, they wintered first in the neighbourhood of Alicant, and next year in the vicinity of Tarragona, two of the most healthy places along that part of the coast. The grand army were composed chiefly of such as had come direct from England, though many had served elsewhere; and, from the casualties in action, had a greater proportion of young recruits: moreover, although I have not the means of actually ascertaining the fact, I believe the proportion of remittent and continued fevers to have been greater with us. The soil that could maturate miasmata capable of producing ague and remittent fever in the interior of Spain would produce remittent and continued fever on the coast of the Mediterranean.

When a case of remittent or intermittent fever suddenly becomes continued, or ceases to remit, accompanied with great and remarkable loss of muscular energy, headach, a brownish, and sometimes greenish, or yellowish furred tongue, particularly towards the base and centre, unquenchable thirst, a sense of heat, weight, or uneasiness in the epigastric region, which is painful on pressure, and frequent vomiting of bilious or dark-coloured matter, with an arid, burning, concentrated heat on the surface of the body, a most formidable and unmanageable disease is to be expected. If opposed judiciously, however, an abatement not unfrequently takes place in two or three days, sometimes earlier, with considerable relief of all the urgent symptoms. The skin becomes perspirable, the thirst less urgent, the dejections answer to the use of cathartics, and, above all, the uneasiness at the epigastric region and vomiting subside, with relief to the headach. But it seldom happened that the disease terminated by a single paroxysm in so short a time; on the contrary, in a few hours, and generally within twelve, a similar paroxysm commenced, and, according to the successful or unsuccessful opposition of this paroxysm, which occurred generally between the second and fifth day of the new form of disease, was the destiny of the patient. If the symptoms were less violent than on the former occasion, and a greater abatement took place in all the symptoms, a favourable termination might be expected. Sometimes the fever would now assume its original periodic type, or it would alter from quotidian to tertian, or *vice versa*. At other times the fever would go on two or three paroxysms more, somewhat similar to the first and second, with mitigated symptoms. More rarely did it cease entirely after the fifth or sixth day, when it commenced or showed a periodic type. During all this period the pulse was exceedingly varied. It was often oppressed and agitated, sometimes violent; it was seldom free and open till the prominent symptoms had nearly subsided.

It sometimes happened, that, about the usual decline of the first paroxysm, the fever abated only slightly, eluding observation, if not narrowly watched, and all the leading symptoms became suddenly aggravated. The anxiety, distension, weight, and uneasiness in the epigastric region greatly increased, as well as became more generally diffused over the abdomen, which not unfrequently became also tense and painful on pressure. The vomiting increased, and the matter rejected was changed from yellow or greenish to a more transparent colour. The thirst was excessive, and fluids allowed in small quantity aggravated the vomiting. The surface of the body had a peculiar harsh, pungent, acrid, burning sensation. The pulse beat violently, particularly the temporal and carotid arteries; and, notwithstanding every expedient that could be devised, the patient sunk into a comatose state. The pulse became more feeble and rapid by the abstraction of blood, and the bowels responded not at all, or imperfectly, to the use of stimulating purgatives and injections. The skin remained unrelaxed, or imperfectly so, and for a very short time, from the use of the warm bath. The eyes assumed a yellow, and the skin a dingy yellow hue; the matter rejected from the stomach remained watery and flaky, sometimes tinged with blood; and the heat leaving the extremities, the patient expired, as it were, before the vomiting of coffee-coloured fluid took place, for I have afterwards found it in great quantity in the stomach.

In other instances the first paroxysm was followed on the second or third day by an imperfect remission; in which the patient remained in a dull, torpid, inanimate, statue-like condition, though serene and sensible, yet showing an indifference either about his own fate or external circumstances, at the time surprising and not very explicable; while his corporeal frame was quite helpless and powerless. I have seen a patient under such circumstances, when raised up in bed, fall down like a corpse. At length the symptoms would return, aggravated in comparison to the state of imperfect remission, but inferior in violence to the former paroxysm—the distress and anguish at the epigastric region excepted, which, with the nausea and vomiting were even increased. Sometimes great distress was felt in the tract of the œsophagus, accompanied with difficult deglutition. The tongue, lips, and teeth, were in such cases covered with black fetid sordes, and the matter rejected became dark-coloured, like the grounds of coffee, sometimes streaked with blood. The stools were somewhat similar, mixed with feculent particles. The surface of the body became cold, clammy, and lifeless, patched and dotted partially or all over with petechiæ. Blood sometimes oozed from the different outlets of the body, (the ears excepted) and life was gradually extinguished. Happily, however, these were extreme cases. The headach, prostration of strength, indescribable anxiety, thirst, distension, heat, and pain in the epigastric region, with frequent nausea, and vomiting of a bilious, greenish, watery, flaky, coffee-coloured, or ink-like fluid, and generally as the disease advanced, yellowness of the skin and eyes, were the chief pathognomonic symptoms. In whatever manner the yellow fever begins, most of the above symptoms appear early in the course of the disease; and the gastric symptoms continue prominent throughout, and point, if not to the real seat of the disease, certainly to the source of the most distressing symptoms, and the organs most visibly affected.

When the disease began in its continued concentrated form, there was seldom any very distinct rigor. General uneasy sensations for a few days sometimes preceded any formal complaints; but more frequently the patient complained of headach, thirst, heat, weight, and uneasiness in the epigastrium; an extreme anxiety and aversion to the slightest degree of muscular motion. On examination there was usually found quickness, irregularity, and oppression of the pulse, of respiration, and of the functions concerned in the process of secretion generally; foul tongue, constipated bowels, and constriction and pungent heat of the surface of the body. As the disease advanced the symptoms became more violent; and the sense of weight, tension, and uneasiness in the epigastric region was gradually changed into pain, which was greatly augmented by pressure; so that a patient, apparently careless and insensible to all around him, would suddenly start up in bed on being slightly touched at the pit of the stomach. The vomiting became more frequent, and the matter rejected was also changed from a yellow or greenish colour to a transparent watery and flaky appearance, often tinged with blood. The skin and eyes from a pale lemon hue, which early appeared in the tunica conjunctiva about the angles of the mouth, chin, and below the ears along the course of the jugular veins, gradually assumed a deeper yellow, which ultimately extended all over the body. Petechiæ, or numerous dark livid or purple spots, and patches of various sizes, sometimes phlyctænæ or watery vesicles, appeared on various parts, generally most numerous on the breast, shoulders, and arms; and mottled erythematous patches appeared in various places, but chiefly about the joints of the knees and elbows. The prostration of strength, universal uneasiness, thirst, anxiety, pain at stomach, and vomiting continued to increase. To headach was occasionally added pain in the eyeballs, which, in some instances, seemed distended, prominent, and, previous to the yellowness taking place, of a glistening, pearly white, and shining appearance. The urine secreted scantily and high coloured from the commencement, now became retained and then suppressed. The secretion of saliva was also scanty, vitiated, and sometimes apparently suppressed; and the tongue, lips, and teeth, as in the former variety, became encrusted with adhesive fetid black matter. The extremities, before preternaturally hot, generally became cold and flabby. Hemorrhagy occasionally took place from the gums, throat, or from the alimentary canal, accompanied with hiccup, subsultus tendinum, and vomiting of matter resembling coffee-grounds, or sometimes of a dark ink-like fluid, that has been compared not inaptly to the juices of the cuttle-fish. After this period life rapidly ebbed, and the patient gradually sank till the last expiration. But if the head was not relieved by treatment, or if the circulation continued rapid to the end, which by the way was rarely the case, death was sometimes preceded by coma and convulsions. This happened in a few instances early in the attack, when the fever assumed a remittent character, apparently referable to the blood being propelled in unusual quantity and velocity on the tender and delicate substance of the brain.

Even when the disease began in its continued and most aggravated form, it was not unusual to observe a very considerable abatement of all the febrile symptoms, though not amounting to a complete remission, which was soon followed by renewed exacerbation. It is perhaps chiefly to this circumstance of abatement, remission, and intermission, that we are to ascribe the very different manner in which the disease has been described, and the different forms and varieties into which it has been divided by different individuals, actuated by the best motives, and no way deficient in discernment. By some authors the pulse is described as weak and quick, with hurried respiration, an anxious or agitated countenance, suppressed secretion, and a harsh, dry, cold, but constricted state of the skin. This, it may be presumed, was a condition which, had the cause been more moderate, the febrile poison not so concentrated, or the patient placed under other circumstances, would have been the well-marked cold stage of a fit of ague. On other occasions the vascular action is described as having been violent at the commencement, and the temperature of the body hot, pungent, ardent, or burning with racking deep-seated pains in the back and in all the joints and limbs; violent headach, protrusion, inflammation, and even suppuration of the eyeballs, occasionally accompanied with delirium, coma, and convulsions; symptoms which are often met with, and are manifestly referable to the hot stage. Sometimes the varieties may be ascribed to peculiarity of temperament or condition of the person attacked. The urine has usually been mentioned as secreted only in small quantity, of a high colour, now and then retained, and even suppressed. The hot, arid, constricted, and imperspirable state of the skin, too, has attracted no small share of attention, and also a particular anxious expression of countenance, recognizable at the bedside of the patient by those accustomed to see the disease, but not to be learned by verbal description. On the other hand, we have been told, and truly too, that the temperature of the body is often little above the natural standard; the skin moist and perspirable; a copious secretion of limpid urine; and the countenance serene and placid. Are not such symptoms referable to the termination of the sweating stage, and the usual state of apyrexia which sometimes succeeds it? In a disease where the symptoms are naturally prone to abate, remit, or intermit, are we to ascribe such variations and apparent discrepancies to a totally different variety of the disease? Is it not more reasonable to attribute these variations to this known and acknowledged remittent tendency?

The indelible features of yellow fever are recognizable by those symptoms denominated *gastric*. The anguish at stomach, heat, pain on pressure, nausea and vomiting; the remarkable depravation of the function of the skin; the irksome fidgetting, restlessness, and prostration of strength; the small quick pulse, and other symptoms, are all referable, or bear some affinity to the destructive process going on in this organ; and, coupled with its usually rapid and fatal effects, the time, place, and circumstances, characterize this disease from every other; yellowness of the skin and eyes almost always, and vomiting of black matter frequently appearing in the fatal cases.

Great importance has been attached to the appearance of the eye, not only as characterizing yellow fever from every other disease, but as distinguishing the different varieties of the disease from each other; but individually it is believed to be of little importance as a diagnostic symptom. As a proof of this, I find, that, in the different forms and stages of the yellow fever, the eyes have been described as hot, painful, red, inflamed, prominent, distended, twinkling, glistening, dazzling, watery, pearly white, green, yellow, wild, agitated, confused, muddy, dull, sluggish, torpid, inanimate, vacant, irksome, impeded in motion, and intolerant of light. Taken in conjunction with other symptoms, however, the appearance of the eye may afford some information of what is going on behind the curtain —as an index of the degree of implication of the brain,—the rapid and violent, or languid, slow, and congested or stagnant state of the encephalic circulation. The headach has also been described as "severe, peculiar, and never failing at the commencement;" the brain and eye are most intimately connected, the latter being little more than a shoot from the former, and supplied with blood by a branch from one of its arteries; but an affection of either organ, however frequent, I believe to be not inseparably connected with this disease, but sometimes to be accessory and contingent. It is allowed by all those who have most seriously considered the subject, that fever perhaps never occurs without involving the brain and nerves; yet, in a practical point of view, I would fix the attention on the stomach, as the organ suffering most, like the brain in summer fever, without being understood to deny that they are affected synchronously. In a few instances, however, the brain is affected sympathetically, and death seldom takes place in this disease, purely from an affection of the brain, but from the general symptoms connected with the destruction of the stomach. The headach is not peculiar or remarkably severe, except under particular circumstances, and it is, moreover, so variable, and occasionally even wanting, that the variable appearance of the eyes, and the changeable nature or absence of headach is even somewhat characteristic of yellow fever, in conjunction with gastric symptoms.

It is of no small practical importance to determine to what cause the headach is to be ascribed. When the headach arises from increased vascular action, it is indicated by its acuteness, by the heat, flushing, redness, and distension of the face and eyes, accompanied with a strong full pulse, if the vascular action is general over all the system; and whether, owing to general increased vascular action, or local, from the irregular distribution of blood, it will almost always be found connected with distension and throbbing of the carotid and temporal arteries. In practice this will generally be found a safe monitor. On the other hand, the symptoms that indicate distension, stagnation, or congestion in the large sinuses of the brain, are a dull obtuse headach; a sense of weight and fulness; a pale or purple countenance; confused intellect; a slow feeble oppressed pulse, with coldness, and defective signs of the vital principle, particularly in the lower extremities.

In some cases of yellow fever the headach is presumed to be nearly sympathetic. It is difficult, or perhaps impossible, to determine the symptoms which characterize the sympathetic headach; but, when the headach is slight in comparison to the gastric symptoms, or entirely wanting, which is sometimes the case at the commencement of the disease; when the circulation is not much accelerated, or when the pulse and the powers of life are in general feeble, and pain at length arises in the forehead and eyes, with loss of memory and depravation of all the senses; it is then probable that it is the sympathy of the brain with the stomach, or perhaps the imperfectly excited state of the brain from deterioration or deficiency of a due supply of blood, or suspension of sensorial power, that is the cause of the headach. It is certain, that, in such cases, the derangement is functional, for no morbid appearances can be detected in the brain after death.

There is a circumstance connected with the headach, which has been mentioned by some writers on yellow fever, as if peculiar to it, and which I have occasionally observed; but, in accordance with what I have seen, it is much more frequent in synocha, or summer fever, and is also observed in other kindred diseases. The headach has been compared by the patient as if arising from a hard cord or iron hoop bound tightly round the head. This sensation I have found to be most frequently connected with violent increased vascular action; and under such circumstances referred it to that remarkable communication of the arteries of the brain, denominated *circulus arteriosus Willisii*, by which the blood passes readily across by a large transverse branch from one internal carotid to the other, and again by the communicating artery on each side, from the posterior cerebral branch of the vertebral artery to the trunk of the internal carotid. As far as I have been able to judge, however, this sensation may also be felt in a state of congestion, which, it is imagined, more particularly takes place in the large sinuses, which, it is unnecessary perhaps to state, do not follow the arteries, but have a different distribution. In such a condition it is not unreasonable to suppose, that, by the stagnation of blood, or effusion of fluids, the volume of the brain may be materially increased, and, from being enveloped in an unyielding bony girdle, becomes pressed upon, and gives rise to the very painful circular sensation that has been compared to the hard binding cord and tight iron hoop. But, however this may be, it denotes the whole brain to be deeply affected, and, in a practical point of view, requires the most serious attention.

Some observers have adverted to a form of yellow-fever, in which the patient remains in a stupid inanimate statue-like condition, without exhibiting any marks of general or local vascular action. The surface of the body is cold and clammy; the pulse weak, and not much accelerated; the secretions suspended; and the bowels, impaired in sensibility, are very imperfectly acted on by purgatives, which bring away small quantities of a dark inky or tar-like matter, but little mixed with feces. This has been justly considered a very dangerous form of disease. There are circumstances, to one or other of which this statue-like appearance, occurring at the commencement of fever, may generally be referred. When, after inordinate action, it is attributed to irreparable injury effected in some vital organ, it may be referred to congestion, or a load of blood oppressing the brain. This may happen in any species of fever, and the symptoms by which the brain is known to be mainly involved may often be understood from what has been already said. In this fever I have not often had occasion to ascribe it to this source, but to the rapid disorganization or destruction of the stomach—the patient gulping up mouthfuls of black vomit when the disease had advanced a little, or discharging dark watery stools in a constrained and imperfect manner, even after the use of purgatives, with relief to the gastric symptoms, but not permanent benefit; accompanied with perfect indifference and resignation to the impending danger, the mind at the same time remaining pretty clear till the very last. It has been alleged, too, that in many cases exhibiting symptoms of extreme exhaustion of the vital principle—the debility extreme, and the patient sinking outright, without showing any reaction—life became extinct, as it were by the gentle operation of a subtile and deceitful poison; I presume by that kind of functional affection of the brain and nerves, by which the narcotic poisons more especially prove fatal, accompanied often by coma and convulsions, without disturbing materially the circulation of the blood, and leaving no morbid appearance whatever after death. This pathological principle is cognizable in several of the *Neuroses.* That the causes of this fever may, under particular circumstances, become of so concentrated and virulent a nature, as thus occasionally to produce death, is not wholly improbable; but I have never remarked such a phenomenon, having generally found very palpable disorganization of parts important to life; and, when such phenomenon appears to occur, I believe it may generally be referred to congestion in some vital organ, or to some other of the causes already alluded to as now and then occurring conjointly, and exhausting the vital principle, when no morbid appearances are to be expected.

Much ingenuity has been shown in endeavouring to point out the difference between inflammatory arterial action and the congestion or stagnation of blood in veins; and distinctions have been pointed out, supposed valid enough, to direct us, as well in explaining many of the phenomena of fever as in the methods of treatment.

In this species of fever, however, the destruction of parts of the first importance in the fatal cases seldom obliges us to look around for less tangible causes. But when the action of the heart and arteries is feeble, as when the destruction of the stomach and bowels is going on, when the brain is oppressed, or from various other causes, the motion of the blood in the veins, doubtless, becomes particularly languid, or may even stagnate in certain parts, and hence prove a secondary cause of distress. It cannot well be considered a primary one, and is believed seldom to be the cause of death. Haller computed the ratio of the area of the whole venous system to that of the arteries as nine to four, the pulmonary veins excepted, their size being little more than that of the pulmonary arteries. In general the size of veins is more than double that of the corresponding arteries. Hence we are not to infer, when the arteries almost invariably participate, that the veins remain altogether unaffected in fever; but we are much more frequently called upon to correct irregular, and moderate inordinate, than to move congested, or accelerate sluggish or diminished action; and the latter is generally a sequence of the former, and harmless comparatively in the disorganization of important parts.

It is a remarkable circumstance in the history of marsh fevers, that although in some instances mild vernal intermittents occasionally terminate spontaneously after a few revolutions of the paroxysm, yet their duration seems very generally to bear some proportion to their mildness; a tertian or quotidian ague continuing often for many months, while aggravated cases of remittent or yellow fever terminate in death, or recovery, in a few days. Another apparent anomaly is, that the partial disorganization of the abdominal viscera, particularly of the liver and spleen, inducing dyspepsia, irregularities in the functions of the bowels, and dropsy, is more frequently met with in the comparatively mild protracted cases, than in the most rapid, concentrated, and malignant forms of the disease. This, however, admits of partial explanation. These structural changes, we have reason to presume, are mainly brought about by the great determination of blood that takes place to these viscera during the cold stage; previous atmospherical heat having given them a predisposition to become diseased. At first their vessels are in many instances perhaps only distended, or in a state of congestion, as it has been termed, and return nearly to their natural state, when the effects of the cold and hot stages have been relieved by copious perspiration; but when repeated returns of the paroxysm produce a similar distension, the blood-vessels lose their natural tone, which more readily happens by their not being supplied with valves, and by being but partially influenced by the pressure of muscular fibre. On the contrary, they are imbedded or ramified in soft, spongy, non-resisting organs, facilitating their farther dilatation, rather than promoting their elasticity, by which chronic inflammation is established, lymph is thrown out in ordinary cases, and in violent cases blood is effused, which becomes organized; and by degrees the original texture is wholly changed, the organ having become more solid, as well as enlarged. In the rapid forms time is not allowed for the establishment or completion of this slow process; and the patient is either killed by violence suddenly inflicted on important parts, or cured by vigorous measures ere the disorganizing process in the spongy organs has been completed.

Between these extremes, however, there are many intermediate shades; and, so far as I have observed, the sequelæ of remittents are somewhat different from those of intermittents. The occurrence of bilious diarrhœa or dysentery is more general after remittents than intermittents; indeed, the number of patients carried off by diarrhœa or dysentery after the original attack of either concentrated or remittent fever has subsided, is greater, I am led to believe, than those who have not seen the disease are usually aware of. In cases of intermittent fever, although these functional or structural alterations are originally the effects of the fever, the organs having once been deranged, act reciprocally on the constitution, and materially modify the character of the original disease, keeping up a constant irritation in the system. In illustration of this remark, it may be mentioned that, without fresh exposure to marsh miasmata, but in countries remarkably salubrious, far from where the original ague had been contracted, relapses frequently happen, and are generally attributable to derangements in the functions of the abdominal viscera, brought on by a variety of ordinary causes. Cold easterly winds, for instance, seem to bring on ague, principally by their unpleasant effects on the nervous system, and by constringing the capillary vessels on the surface, and driving the blood to the centre of the body; causing afresh those determinations and congestions which had been primarily produced by the fever, but which now in turn bring on the ague.

The appearances on dissection vary not more in marsh fevers than do the symptoms which precede the fatal terminations; but in yellow fever the appearances on dissection are pretty uniform and satisfactory, in as far as they agree with what might be expected from the preceding anguish and distress in the epigastric region, and tension over the abdomen,—being chiefly an inflamed state of the stomach and intestines. Upon opening the abdomen, and reflecting the omentum, in many cases nothing of a morbid nature presented itself; in others, fasciculi of red vessels could be seen running on different parts of the intestines; and when the disease commenced with great violence, and speedily proved fatal, I have seen the whole of the peritoneum much inflamed, and of a dusky red mottled appearance, or even gangrenous in particular places.

Upon making an incision into the stomach, commencing at the pylorus, the villous coat appeared crowded with innumerable minute red vessels, forming specks and patches on different parts of a beautiful scarlet colour; but the appearances varied according to the violence of the inflammation, which in general was greatest at the cardiac orifice. In many cases the latter part appeared quite black and mortified; but upon investigation this appearance was proved to depend upon an effusion of blood between the cellular and villous coats of the stomach. I have seen the villous coat entirely destroyed in different places, leaving little excavations, and a plexus of innumerable enlarged and denuded blood-vessels, several of these being ruptured. Many little streaks of coagulated blood were seen mixed with the contents of the stomach, which consisted of a dark brown-coloured fluid, resembling the grounds of coffee, frequently blended with coagulated blood, as if there had been a rupture of an overdistended blood-vessel on the internal gastric surface. On other occasions the inner surface of the stomach appeared abraded, the mucous coat having apparently separated; often the cardiac orifice of the stomach and the lower portion of the gullet had a dusky red erythematous appearance. The whole of the alimentary canal was often lined with the same kind of dark brown-coloured fluid found in the stomach; sometimes this fluid was black and inky, resembling the juices of the cuttle-fish.

Patients, after seeming convalescence, were frequently carried off by an ungovernable diarrhœa, accompanied by thickening and ulceration of the large intestines, apparently originating from the same causes which produced the disease in the stomach. Sometimes portions of the alimentary canal were contracted, as if bound by pieces of pack-thread; on other occasions, the bowels having lost all tone, as it were, appeared lax and bloodshot. Though the liver generally participated in the disease, it was not necessarily engaged in it, nor could a degree of inflammation that was chiefly confined to its small lobe ever be considered the cause of death. The substance of the organ was frequently pale, and preternaturally soft. The spleen was often twice its original magnitude, and covered with black spots, exhibiting the same appearances as dark livid petechiæ do, on the surface of the body. Not unfrequently it appeared quite gangrenous from effusions of blood beneath its capsule.

Though these were the usual appearances in the most legitimate form of the disease, when no very evident remissions took place, and when it proved fatal in the first week from the attack, it was not uncommon to observe others which appeared contingent or adventitious, arising from peculiarity of constitution, or circumstances of exposure. Sometimes, for instance, dissection showed a tuberculous or hardened diseased state of the liver, which had been long previously formed, and which evidently had nothing essential in producing or being produced by a disease which ran its course in a few days. Tuberculous or hepatized lungs were often met with, and sometimes they appeared loaded with blood, particularly when the arterial action had been violent, and had occasioned difficult respiration; but this was also purely adventitious, for in most cases the lungs appeared remarkably sound; and vestiges of pulmonary complaints on such occasions were more rarely seen than usual. The same remarks are not inapplicable to the state of the kidneys, which were rarely found altered in structure.

Perhaps the most important consideration that can occupy the attention of those who treat of yellow fever, is to estimate the degree of implication of the brain, spinal marrow, and nerves, with as much precision as possible. When the synocha or summer fever merged into the autumnal, or gastric, it was by no means uncommon to find a considerable degree of vascular excitement or turgescence both in the brain and stomach; but, as the season advanced, the morbid appearances observed became gradually more faint in the brain and its appendages, while, in a somewhat proportionate degree, they became more palpably manifest in the stomach and bowels. When the fever had a remittent character, and was attended with unusual determination of blood to the head during the hot stage, as evinced by headach, throbbing of the carotid and temporal arteries, delirium, or coma; or when the head was particularly affected from peculiarity of constitution, intemperance, or insolation,—the brain and its membranes exhibited various tokens of having been subjected to different degrees of vascular derangement, particularly along the course of the temporal and middle meningeal arteries, and about the base of the brain, with thickening of its membranes, and effusion between them, and into the ventricles. In the worst and most fatal forms of this disease, nevertheless, I have occasionally been unable to detect any morbid appearances whatever either in the brain or its membranes. The sanguiferous system acts violently in many instances; and the effect of this increased action on the brain is imprinted on it from its soft nature and the peculiarity of the circulation of blood in the head, and is a secondary act; an effect not a cause of the fever. The local effects of the action of the blood vessels on the brain are seldom considerable, unless under the circumstances already mentioned.

It has been supposed that the miasmata, or contagion, if you will, enter the body by the skin, and perhaps also through the lungs and stomach, and through these channels act on the brain and nerves, or at once directly derange the stomach and the circulation of the blood. But whether it is that the reception of the miasmata into the body through these media acts on the brain and nerves, or by a more direct influence, the stomach, or arterial system, individually or conjointly, simultaneously or in succession, are affected, in a practical light matters not; certain it is, that the stomach is deranged, and the circulation is disturbed very early in the attack. Simple explanations of a morbid process are seldom correct; and that in question involves many complications.

Why does the stomach suffer so severely in yellow fever? Is it merely from preternatural irritability, induced by previous atmospherical heat, or is it from the specific effects of the marsh poison? or is it from both, or from other causes? Particular poisons produce effects on certain parts in preference to others in ways not well understood, as exemplied in the exanthemata, erysipelas, frambœsia, syphilis, itch, in the plague, in puerperal fever, and in various other diseases. That the febrific miasmata, or contagion, may produce fever; and that inflammation of the stomach may occur as a sequence from acquired irritability in that organ, seems countenanced by the not unfrequent occurrence of hepatic inflammation, cholera, and bilious diarrhœa, about the same time, as well as by the occasional simultaneous affection of other organs, particularly the brain, just as in ordinary cases of fever; but from the almost invariable affection of the stomach, and from its occasionally being the only organ primarily and prominently affected in some of the worst cases of the disease, it would appear that there was something in the nature of the febrile cause peculiarly hostile and destructive to this organ.

(To be continued.)

ART. III.—*Cases of Intermittent Fever in which bleeding was employed in the Cold Stage, with Pathological Observations.*

By JOHN MACKINTOSH, M. D., F. R. College of Surgeons, Acting Surgeon to the Ordnance in North Britain, Physician to the General Dispensary Brown's Square, and Lecturer on the Practice of Physic, &c. in Edinburgh.

THE progress of medicine has been greatly retarded by the conduct of those who have attempted to explain too much. Instead of seizing on the principal phenomena of a disease, and following these, they have employed all their talents in endeavouring to discover the occult causes. In intermittent fever they have exerted all their ingenuity in tracing the cause of the rigors, while they have thrown no light whatever upon the nature and seat of the disease.

It is not the exact object of this paper to attempt any refutation of the doctrine of Cullen, respecting "debility, diminished energy of the brain, and spasm of the extreme vessels," as the proximate cause of the cold stage; or that of Mason Good, who appears to attribute it to "debility and a diminished supply of sensorial fluid." It appears to me that the crude mechanical notion of Hippocrates stands upon quite as good a foundation. He thought that a quantity of air got into the vessels of the surface of the body, and drove the blood before it to the centre, and thus produced the cold stage.

Before we shall be entitled to receive the doctrines either of Cullen or Good into the medical evidence of the case, we must be more intimately acquainted, not only with the anatomy and physiology of the brain and nervous system, and with the structure of the extreme capillary branches, but also with the great principle of life itself,—upon all which points we are as yet unfortunately profoundly ignorant.

I shall now proceed to give a sketch of the symptoms in the first stage of intermittents, as they generally appear, and then shortly offer my opinion, respecting the pathological condition of the body on which these symptoms depend.

For some little time before the paroxysm begins, the patient complains of lassitude and debility, (but which is not actual weakness, but oppression,) with diminished circulation on the surface of the body, more particularly in the extremities; they are benumbed and feel cold; the sense of cold becomes universal, and a shivering takes place. The body soon becomes affected with universal tremors. There is great prostration of strength, confusion of mind, sometimes delirium, anxious and quick breathing, the patient being unable to take in a deep inspiration, and oppression at the præcordia; and the pulse, which is sometimes quick, at others slow, is often irregular, but always oppressed.

It is rare, avowedly, that complete coma, apoplexy, or convulsions take place; but that these do occur, the records of medicine fully prove; and I have seen more than one person die in the cold stage. The convulsive tremors are not under the control of the will, and if I can trust my own sensations, they affect internal as well as external muscles.

I attribute all these symptoms to congestion in internal organs. I imagine no one who has seen this disease will deny that there is sufficient evidence of the balance of the circulation being upset, and that an irregular determination of blood takes place. It appears to have quitted the surface, by the coldness and shrinking of the extremities. It is forced upon internal organs to a serious extent, impeding their functions.

Thus the convulsive tremors, confusion of mind, and pain in the head, are produced by congestion of the brain and spinal marrow.

The difficulty of breathing is owing principally to venous engorgement of the lungs, and the overloaded state of the right side of the heart. The spleen, liver, and mesenteric vessels, also suffer from congestion, and frequent attacks lead to structural derangements of these viscera. These pathological conclusions are fully established, by comparing the symptoms with the morbid appearances found in the examination of the bodies of those who have expired in the cold stages, and are corroborated in a remarkable manner, by the good effects of opening a vein, when all the symptoms give way in an instant. I have seen men in the most severe sufferings, relieved after the abstraction of 6, 8, and 10 ounces of blood. I have known 3 ounces suffice, and on one or two occasions only I had to bleed to the extent of two pounds. The relief, which is the most perfect relief that can well be conceived, is so sudden, when a good orifice can be made, that it has surprised and delighted every one who has seen my practice. I shall never forget the pleasure which was expressed by my excellent friend Dr Kellie, who is well known to the professional world, when he first saw the practice carried into execution in my hospital. Before proceeding further, I may shortly mention the appearances which I have seen on opening the bodies of a few men who expired in the cold stage.

An immense quantity of black blood was found in the vessels of the head, the lungs, the heart, and large vessels near it, the liver, spleen, and mesenteric vessels. The spleen, (according to Sir John Pringle, and some of the older writers,) has sometimes been found ruptured from over-distension. So great a quantity of blood have I seen in such cases in the lungs, that large sections of them sank in water. These portions, when washed and deprived of blood by pressure, regained their natural appearance and buoyancy. The liver, when washed and squeezed, will also regain its natural colour.

This pathological condition of organs has been denominated "congestion." It simply implies, that the balance between the arterial and venous systems is lost for the time, the latter being overloaded or congested, and not that the circulation in any organ, or set of organs, is entirely obstructed. This indeed does happen in those extreme cases, in which reaction does not take place, and the individuals die in the cold stage.

From the time of Celsus, an idea has prevailed that death would be the inevitable consequence of bleeding in the cold stage. The late Dr Gregory used to make this assertion in his lectures, and, to give it more weight, he quoted the expression of Celsus, "hominem jugulare." Other lecturers on the practice of physic make similar statements. It would be curious and interesting to know, whether they have ever seen this melancholy consequence of bleeding in the cold stage; or whether they have been led to *suppose* it would be produced, assuming, as Cullen did, that the paroxysm is produced by debility, want of energy of the brain, and spasm of the *mouths* of the extreme vessels.

After numerous observations, made with the utmost anxiety to discover truth, and from the sensations I experienced during a protracted intermitt[illegible] a marshy countr[illegible]mitted myself to the experimen[illegible] first instanc[illegible]ding altogether the force of [illegible]pon this su[illegible] and all the usual remedies [illegible]and my h[illegible]terially injured. [illegible] w[illegible]e arm, an[illegible]unces were ab[illegible] e[illegible]d all its [illegible] companime[illegible] sweati[illegible]casant sense of heat succeeded the painful one of cold, and instead of weakness, I was sensible of an acquisition of strength. Afterwards I bled many other individuals, and always with the same results. This was done so long ago as the year 1810; but as I cannot appeal, at this distance of time, to living witnesses, I shall confine the statement I am now to make to the cases of intermittents which have occurred to me within these few years, and which have been seen by many witnesses who were well qualified to judge, from their experience, and standing in the profession, and also by many of my pupils.

Case I.—James Ward—admitted into Royal Ordnance Hospital in November 1823.

Has suffered several attacks of intermittent annually, since the year 1809, when he served in the expedition to Walcheren. Of late his indispositions were long, and left him more and more debilitated. Several of my pupils watched this man closely every third day, for a number of attacks, with a view to bleed him in the cold stage, but they were not fortunate enough to arrive in time; they bled him twice, however, in the hot fit, from the severity of the symptoms, and with considerable temporary relief, but without preventing or mitigating the violence of the subsequent paroxysms. Some time afterwards, in the presence of Drs Lucas and Robinson, two of my pupils, I bled him from a vein in the arm, during the cold stage; it was very severe; the rigors were violent, and the sense of coldness insupportable. He complained much of his head and loins, his face was of a livid colour, and the vessels of the conjunctiva turgid with blood. Pulse 100 or 105, and oppressed, breathing short and anxious, and, to use his own expression, he felt "a heavy load about his heart." When the vein was opened, the blood trickled slowly from the wound, but it soon came in a jet. By the time 8 ounces were taken, the rigors ceased, and he expressed great surprise at the suddenness of the relief; when 12 ounces were abstracted, he was free from all complaint, and his skin had a comfortable moist feel. He enjoyed a good night; he had no return of the intermittent; and his recovery was rapid.

I had an opportunity of seeing this man daily for some months afterwards, and his constant tale was, that he had not felt so well, or so much of a man since he went to Walcheren. The only remedies he took after the bleeding, were laxatives and infusion of quassia.

Case II.—James Atkinson, aged 33, had had repeated attacks of ague. Was seized with severe rigors when on the top of the Carlisle mail, travelling to Edinburgh. The paroxysm was evidently produced by exposure in bad weather, first to rain, and then to a keen frost, with wet clothes. When I visited him in hospital, he had laboured under the rigors for no less a period than twenty-six hours,—in truth, it was the most severe cold stage I had ever seen in any country. He had severe pain in the head, back, and loins; oppression at præcordia. Warm drinks and stimulants, and hot applications had been employed without benefit. The agitation of his body was so great, that it shook the very bedstead on which he lay, and threatened to terminate in convulsions. Tongue loaded, but moist; breathing hurried and laborious; pulse 65, oppressed; skin not below the natural standard over the trunk, but all his extremities were cold, and he complained of a sensation of extreme cold. Fortunately, I made a good orifice, which is not always easily done from the tremors, and the blood flowed in a better stream than I had ever seen it in the cold stage; 12 ounces were abstracted in three minutes, with very trifling relief, except to his breathing; but during the flow of the second pound, he became more and more easy, and the rigor ceased completely. This pound was abstracted in two minutes; the arm was tied up on the approach of syncope, from which, however, he soon recovered. He lay quite easy; his body, and even the extremities, became of a proper temperature; and his skin felt moist; his pulse rose from 65 to 106; he passed a good night; had several stools during the next twenty-four hours; was found perfectly easy next day. On the following day he was convalescent, looked well, and asked for more food, and had no return of the disease.

Case III.—Thomas Bullock, a strong healthy young man, reports that he had had the disease in the tertian form for twelve days. Attributes the attack to exposure to cold when on sentry in the arsenal at Woolwich. He was in the sweating stage when brought into the hospital on the 4th March 1826.

Habeat statim pulverem laxantem. Fever diet.

6th.—Had a severe rigor, followed by intense reaction; was found sweating at the hour of visit; no stool.

Repetatur pulvis laxans.

8th.—Cold fit came on at three A. M. After it had continued half an hour and was well formed, his pulse beating 84 and oppressed, a vein was opened in the arm by Mr Marshall, (one of my most zealous pupils, now assistant-surgeon of the 87th Regiment,) in the presence of several other gentlemen. When 15 ounces of blood were abstracted the rigor ceased; the pain of head and loins, and the oppression at præcordia vanished; the breathing became natural; the pulse rose to 95; in half an hour after the operation, said he felt quite well; there was no hot fit; a very gentle moisture was on the surface, but there was no sweating stage; pulse 95.

10th.—Says he feels quite well, and free from that anxiety and oppression which has affected him from the time he caught cold at Woolwich; is able to be out of bed and dressed; appetite improved. He escaped any attack for eight days.

18th.—Was attacked with rigors a quarter of an hour before the visit. He is now in a severe well-formed cold fit; breathing hurried and laborious; the whole body is in a tremor; is rather heated; passed a bad night; pulse 120, oppressed. Attributes this paroxysm to cold when in the privy. A vein was opened in the arm, and 14 ounces of blood was abstracted before the fit was subdued; there was no tendency to syncope; pulse 110, full, and of good strength.

Repetatur pulvis laxans. No hot stage; no sweating stage followed.

19th.—Yesterday, for some time after the bleeding, he appeared free from all complaint; but towards evening he was attacked with a violent headach and pain in the belly. Blood was again taken from the same orifice, to the amount of 12 ounces, with complete relief, since which he has been easy and slept well; bowels slow.

Repetatur pulvis laxans.

20th.—Slight chill this morning, which appeared to be cut short by a warm drink; no fever followed; passed a good night; bowels not moved.

Sumat. solut. sulph. magnes. statim.

22d.—Had a slight sensation of cold this morning, but there was no hot stage; says he feels quite well; bowels slow.

Repetatur pulvis laxans.

23d, 24th and 25th.—Report states that he went on improving.

26th.—Says he does not feel so well; but there has been no tendency to rigor; bowels bound.

Habeat statim sulph. magnesiæ ℥ss.

31st.—He went on improving in health, and without any return of the disease till this day. He was found at the time of visit in the hot stage, which is scarcely perceptible, after having experienced a slight rigor, which lasted for twenty minutes; tongue white and loaded.

Repetatur pulvis laxans.

April 2d.—Had a severe rigor at 10 A. M. which was followed by fever and the sweating stage; at 2 P. M. he was found quite free from complaint.

His health went on improving gradually till the 25th, when he was discharged the hospital cured.

The same individual reported himself sick on 30th May following, and was taken into hospital, after a severe paroxysm of intermittent; states that, since his discharge, his health had been very good and his strength increasing, and that he has had three slight rigors; his appearance is much improved.

31st.—Says he expects the paroxysm to-morrow morning at nine o'clock; bowels regular; appetite good.

He was ordered to take three grains of sulphate of quinine every half-hour, commencing three hours before the expected time of attack.

June 1st.—He took six doses of the quinine; escaped the paroxysm; had no return afterwards, and was discharged on the 4th.

Case IV.—Robert Smith, a stout man, whose health had formerly suffered from a residence in a warm climate, states, that he had had an intermittent fever five years ago when stationed at Woolwich, but has not had a return of the disease till now; was taken into hospital on 7th March 1826, labouring under febrile action, which he said came on after a severe rigor; the fever continued with disturbed sleep till the 13th day, with little variation. He was then seized with a severe rigor, attended by sensations more than usually distressing; above all he complained acutely of his head. He was bled during the cold stage to twelve ounces, when the tremors and the other symptoms ceased all at once; he soon after fell into a profound sleep, his skin having a gentle moisture; there was no hot stage.

14th.—Slept well, and feels free from all complaint.

15th.—Slight chill, but no subsequent pyrexia; no appetite; bowels freely moved by a dose of salts; tongue loaded; pulse natural.

16th.—Had a cold sweat during the night; no return of paroxysm; says he feels better, and has some appetite; pulse natural; tongue less loaded.

17th and 18th.—Improving; half diet.

19th.—Had another cold perspiration in the night, but says he feels well; bowels rather slow.

Habeat statim pulverem laxantem.

20th.—Complained of severe headach yesterday afternoon, attended with some febrile action; says he is now better; appetite improving.

21st.—Slight chill, which continued for nearly an hour, attended with griping; but no febrile action followed; bowels regular.

22d.—Had a severe rigor this morning, attended with difficulty of breathing, oppression at præcordia; pain in back and loins, and severe pain in the head. At the visit was found in the hot stage, complaining much of headach; tongue loaded; pulse 130; bowels open; cold water to be applied to the head.

23d.—The headach has continued violently since the commencement of the cold fit yesterday; cold applications produced temporary relief only.

Applicentur hirudines xij. capiti. Habeat pulverem laxantem statim.

24th.—Leeches relieved the head; had another paroxysm this morning.

Repetatur pulvis laxans, c. m.

25th.—Passed a bad night; no headach.

Habeat Tinct. opii. gtt. xxx. h. s.

26th, 27th, 28th.—Same report, "doing well;" bowels regular.

29th.—Says he feels pretty well, but that he has occasional headachs.

30th and 31st.—Had slight paroxysm each day, with some headach; pulse not higher than 96.

April 1st.—Another paroxysm with severe headach after a bad restless night.

Capillitio abraso applicentur hirudines xx. Repetatur pulvis laxans.

2d.—Experienced another paroxysm at half-past nine this morning; still complains, although he is perspiring, of oppression at præcordia, difficulty in inflating the lungs, and headach; had a restless night; sixteen of the leeches only fastened; they bled well, relieving his head for the time.

Applicentur hirudines xii. capiti, et repetatur pulvis laxans.

Feels better; no paroxysm; had a bad night, during the whole of which the perspiration continued; leeches bled well, and relieved the head completely.

Repetatur pulvis laxans.

From this time to the 8th he gradually improved, having had, however, a slight paroxysm on the 4th, 6th, and 8th. Next day he began the use of the quinine in five grain doses, and suffered no return. He took in all 116 grains, and he was discharged cured on 24th.

Case V.—William Macauley was admitted into the Royal Ordnance Hospital on Wednesday 31st May, labouring under a severe hot fit, attended with the usual symptoms, great headach, severe pain in the back, loins, and limbs; great oppression of præcordia, extreme heat, thirst, and general uneasiness. This stage lasted for five hours before perspiration appeared.

This was the second paroxysm with a day intervening; tongue loaded; pulse hurried.

Habeat cras mane pulverem laxantem.

June 1st.—Had no sleep during the night, but feels pretty well to-day; two stools.

Repetat. cras mane pulvis laxans.

2d.—Had a severe cold stage at 2 P. M. which lasted till 4. He was visited at 5 P. M. when he was in the hot fit, suffering from all the symptoms formerly described.

3d.—The succeeding stage did not appear last evening till 8 o'clock. Has had no sleep; two stools; tongue clean.

4th.—The paroxysm took place at 1 o'clock P. M. this day; about 12 o'clock the pulse was counted, and was found to beat 84, and oppressed; the precursory symptoms had just commenced; at half-past 12 the pulse was 66, and still more oppressed. This rigor was very severe; the tremors of his body shook the bed, and his sense of cold was unsupportable, at the time that a thermometer placed under the tongue stood at 100. He complained of great oppression; pain of back and loins; respiration difficult and hurried. The rigor was allowed to be formed for 10 or 12 minutes before a vein was opened, which was effected with difficulty, owing to the tremors. He bled from a small orifice until 24 ounces were drawn, which occupied 16 minutes, when the rigor ceased, and all its unpleasant symptoms.

Repetatur cras mane pulvis laxans.

June 5th.—Last evening he began to complain of a severe pain in the back and head, with thirst. Heat 105; pulse 115, but soft. Relief soon followed the exhibition of 40 drops of laudanum in an ounce of the spirit of mindererus; passed a good night with much perspiration; says he felt quite easy to-day; much easier than he has been at any time since the first paroxysm; bowels slow.

Habeat statim pulverem laxantem.

Had attacks of a slight nature on the 6th, 8th, 10th, 12th, 14th, and the following report was made on the 15th. Health evidently improving; sleeps well; bowels regular; tongue clean and moist; thirst diminished.

16th.—Had a severe rigor at 11 A. M. It was of very short duration. Considerable reaction followed. Had two slight paroxysms on the 18th and 19th; and on the 20th he was ordered to take five doses of the quinine; each dose to consist of four grains; after which he had no return of the disease."

Case VI.—Alexander Clark, a stout well-made young man, with a florid complexion.

Had three attacks of tertian intermittent before he reported himself sick; came into hospital on 21st May 1826 with the fourth paroxysm upon him. He was attacked at 7 A. M. with rigors, and the fit was very severe. The hot stage had given way to the sweating when I saw him. He could assign no cause except that he had done duty at Woolwich a few months before. Tongue foul; fever diet.

Habeat statim pulverem laxantem.

23d.—Was free from complaint yesterday; had six stools from the laxative. The rigor came on this morning at half-past six, and went through the regular stages with the usual distressing symptoms. Tongue much loaded; B. regular; no appetite; urine scanty.

Repetatur cras mane pulvis laxans, et Sumat ter in die infusi quassiæ ℥ii.

He experienced severe paroxysms on the 24th and 26th, attended with headach and a severe pain in right hypochondrium.

28th.—Rigor came on at 11 A. M. Five minutes after it was well formed, a vein was opened, but the operation was badly performed owing to the violent tremors; 20 ounces of blood were slowly drawn, when the rigor ceased, together with the tremors, the difficulty of breathing, the oppression at præcordia, and the headach, &c. The painful sense of cold gave way all at once to a pleasant feeling of heat, and the pulse became natural. The bleeding was not carried the length of producing syncope. There was no hot stage, and the skin was covered with a gentle moisture. In half an hour his only complaint was of slight nausea; he is able to change his position at pleasure, and feels disposed to sleep.

29th.—Had considerable heat of skin and thirst yesterday evening, which he attributed to the pressure of too many bed-clothes; the blankets not having been removed which he had caused to be heaped upon himself on the approach of the cold stage. Slept well during the night; feels quite easy; no stool.

Injiciatur statim enema purgans. Capiat cras mane pulveris Rhei. gr. viij.

30th.—Had an exceedingly slight paroxysm at noon; slept well last night; no appetite; had five evacuations from the bowels.

Capiat infusi quassiæ ℥ij. ter in die.

31st.—Had another slight chill this afternoon, but there was no rigor or hot stage—complains of pain in left hypochondrium. Passed a good night; B. regular; considerable thirst; tongue still foul; pulse 100, very full, but soft.

Imponatur vesicatorium parti dolenti.

His general health and appearance improved especially after this period, but he continued to experience daily slight attacks till the 7th June, when he got, thrice a-day, five grain doses of the quinine.

June 8th.—Took the quinine at eleven, at one, and three o'clock, nevertheless, he had a paroxysm at a quarter past three, which he is disposed to attribute to exposure when asleep between two open windows; high excitement followed the rigor, which terminated in the sweating stage.

He continued to take the quinine on the 9th and 10th, and had no return of the disease. He regained his health and strength rapidly, and was discharged on the 17th June.

Dr Kellie of Leith was present when Clark and Macauley were bled; so were several gentlemen who were attending my lectures at the time.

Case VII.—Mr Marshall, assistant-surgeon of the 87th Regiment, whose name I have had occasion to mention before, when on a visit to his friends in the west of Scotland, was called to see a middle-aged man who had served in the army in a warm climate, and who had suffered most severely for some years from intermittent fever. Every kind of remedy had been tried in vain, and he gladly submitted to the treatment of bleeding in the cold stage, which Mr Marshall had seen so successfully performed in similar cases. "On the 6th July 1826," says Mr Marshall, "I was asked to visit this man for the first time. Previous to my going, I informed Mr Staff-Surgeon Marshall (senior) of the nature of the case, in as far as I was enabled from the history given by his relations. Mr M. recommended a grain of opium to be given every hour for three hours previous to the attack. The shivering commenced regularly about six in the evening. The opium was given at 3, 4, and 5 o'clock, P. M. with no relief. 8th—Opium continued as directed; no relief; bowels opened by rhubarb. 10th—No relief from the opium. 12th—The cold fit is very severe; the feet cold; heat of the superior extremities rather above the natural standard and moist; pulse very small, not easily perceived; pain of head excessive; great thirst; pain in back considerable; complains of distressing sense of weight at the præcordia. He solicited me to do something for him, as he could not long endure the sense of cold. I opened a vein in the arm by a pretty large orifice. At first the blood trickled down the arm, but shortly came in a full stream. When 10 ounces of blood had flowed the shivering ceased, and all the bad symptoms vanished. Half an hour after the bleeding, says he is quite well. On the 14th, 15th, 18th, no return of fever." He declared he felt quite well; and Mr Marshall assured me that he had had no return of the complaint when he last visited him, which was several months after the bleeding. Indeed Mr Marshall mentioned to me that the cure seemed to be as sudden, and apparently as permanent, as that which took place in Ward's case, the first recorded in this paper.

Case VIII.—A. B. aged 36, a native of Eyemouth, was seized with an intermittent of the quartan type when in Lincolnshire in August last. He had used various remedies, and among the rest bark, without relief. The paroxysms have continued with such regularity, that he has not escaped a single attack since the commencement of the disease. His health and strength have suffered so much, that he has been unable to work for a considerable time, and he came to Edinburgh, almost in despair, to seek relief. Having applied to my friend Dr J. A. Robertson, this patient was handed over to me. His look is meagre and emaciated; he appears the wreck of a strong and active man. He gave the above account of himself, and added, that he has great thirst and no appetite, that he sleeps badly, and never free from pain in the back part of the head and left hypochondrium, and that he has become as weak as a child; and that his vision has lately become impaired. Pulse 100, and weak; tongue clean; B. regular.

On Thursday, 28th December 1826, at 2 P. M. the rigor commenced, and when it had continued for half an hour, I opened a vein in the arm, having placed him in the sitting posture; his whole body was affected by violent tremors, his teeth chattered; he complained of intense cold; dimness of sight; severe pain in the back part of the head, and in the left side, loins, and inferior extremities; his pulse was weak and fluttering, so as not to be counted, and the countenance expressed great suffering. Owing to the violence of the tremors, a bad orifice was made in the vein, and the blood flowed slowly. When about twelve ounces were abstracted, the rigors diminished, the uneasy feelings began to subside; and by the time 16 ounces were taken, he was free from tremor and pain, and said he felt quite well. The pulse was now a good pulse, but I neglected to make a memorandum of its number at the time. He showed some tendency to syncope before his arm was tied up.

My friends Drs Robertson and Scott, and Mr Syme, together with several other gentlemen, were present when the operation was performed. He was visited in an hour, when he was found breathing naturally, in a sweet sleep. Pulse 84, and of good strength. I was told he had been very faint, and had vomited immediately after we left the house.

In an hour after last visit I saw him again; his body had the natural heat; there was no perspiration; he was still asleep; pulse 80, and full. He was roused after the pulse was numbered, for the purpose of ascertaining the exact nature of his feelings. He said he had not felt so free from indisposition since the first period of the attack, and that he had been long a stranger to such a comfortable refreshing sleep; he took some gruel, soon fell asleep again, and passed an excellent night.

Friday 29th.—Said he felt quite well; was free from the pain of head and left hypochondrium, and he thought his strength improved; in fact he came to the dispensary himself; B. regular, tongue clean.

Saturday 30th.—He came to the dispensary at the visiting hour, and said that he felt himself "a new man."

Sunday 31st.—He came to the dispensary again, and was seized with the paroxysm a little after the hour of visit. The fit was preceded and accompanied by much slighter pains and general disturbance than any former attack. In about ten minutes after the fit could be said to be well formed, the rigors were very severe, and the tremors violent, and the feeling of debility was so overpowering that he declared he could sit up on a chair no longer; his breathing was quick and laborious, and his teeth chattered; I tied up his arm and opened a vein, and actually before *three ounces* were abstracted, the paroxysm ceased, and with it all the other unpleasant symptoms. Although a minute before he had declared that he could not sit up a moment longer from debility, yet he now said he felt his strength restored, and he had no wish to lie down, and in less than ten minutes, I had the pleasure of seeing him running home. There was no subsequent heat of skin, and no sweating; his pulse, before he left the dispensary, was 86, and of good strength, whereas, before the bleeding, it was 100, and so weak as scarcely to be counted.

Monday, 1st January.—I sent to inquire how my patient felt; the messenger was told that he had had a good night, and was out making merry with some friends.

On Wednesday he had a slight chill without subsequent fever or sweating; he afterwards got the sulphate of quinine, and had no more of the disease.

From the facts already detailed, I think I may safely draw the following conclusions, which, if correct, will hereafter be found of great practical utility.

1. I need scarcely say that bleeding in the cold stage will not necessarily produce death.

2. That this practice will sometimes cure the disease; at others it will prove beneficial by breaking the chain of diseased action, and rendering the subsequent paroxysms milder and milder.

3. That bleeding in the cold stage, in every case in which it has been yet tried, has cut short the cold fits, and has prevented the subsequent stages of the paroxysm, so that the hot and sweating stages are saved. It seems to operate by anticipating the natural efforts of the constitution, removing the internal congestion, and restoring the lost balance of the circulating system.

4. That it promises to be most serviceable in severe autumnal intermittents; and more particularly in the pernicious and malignant fevers, as they are termed, of Italy, Holland, and other marshy countries, which are well known to be very fatal under the ordinary treatment. In these cases the reaction of the system cannot fully develope itself, in consequence of the

extent to which internal congestion has taken place, and which this practice will remove.

5. That it may be used with safety in any climate where the cold stage continues long and threatens danger.

6. That bleeding in the cold stage is, at all events, more successful than in the hot stage, or than in the intervals. For although I have often seen bleeding used in such circumstances, and with advantage, by mitigating unpleasant symptoms, yet I have never known the subsequent paroxysm prevented by it.

7. The practice may be adopted in the first stage of all fevers; and probably will be found useful by surgeons in concussion of the brain.

8. If these cases possessed no practical merit whatever, they promise to be productive of great advantage to medical science, by destroying the very foundation of the erroneous system of Cullen. The doctrines upon which this system is founded have, to this day, bewildered old and young in the profession, who think and act only under the nod of authority. Cullen's system has been a great bar to all improvement in medicine; and is the principal cause of the backward state of pathology in this country, when compared with the strides made in that department by our professional brethren in France.

It was my intention to have extended my observations upon this subject, particularly with a view to explain away the objections which will naturally suggest themselves to the minds of those who have been reared in Cullenian schools, and who still continue to be the staunch apostles of its doctrines. But as this paper has already extended itself beyond the limits originally intended, I must postpone such remarks for a subsequent number of this Journal.

It only occurs to me to mention, that it will afford me much pleasure to receive communications from any of my professional brethren upon this subject, particularly from those who are situated in aguish districts.

31, *Albany Street,*
Edinburgh, 1*st January* 1827.

ART. IV.—*Case of Tuberculated Ovaria.* By ROBERT RENTON, M. D., Fellow of the Royal College of Physicians Edinburgh, Physician Accoucheur to the Edinburgh New Lying-In Institution.

THE pathological reader will perhaps feel some interest in perusing the following history of a well-marked case of tubercu-

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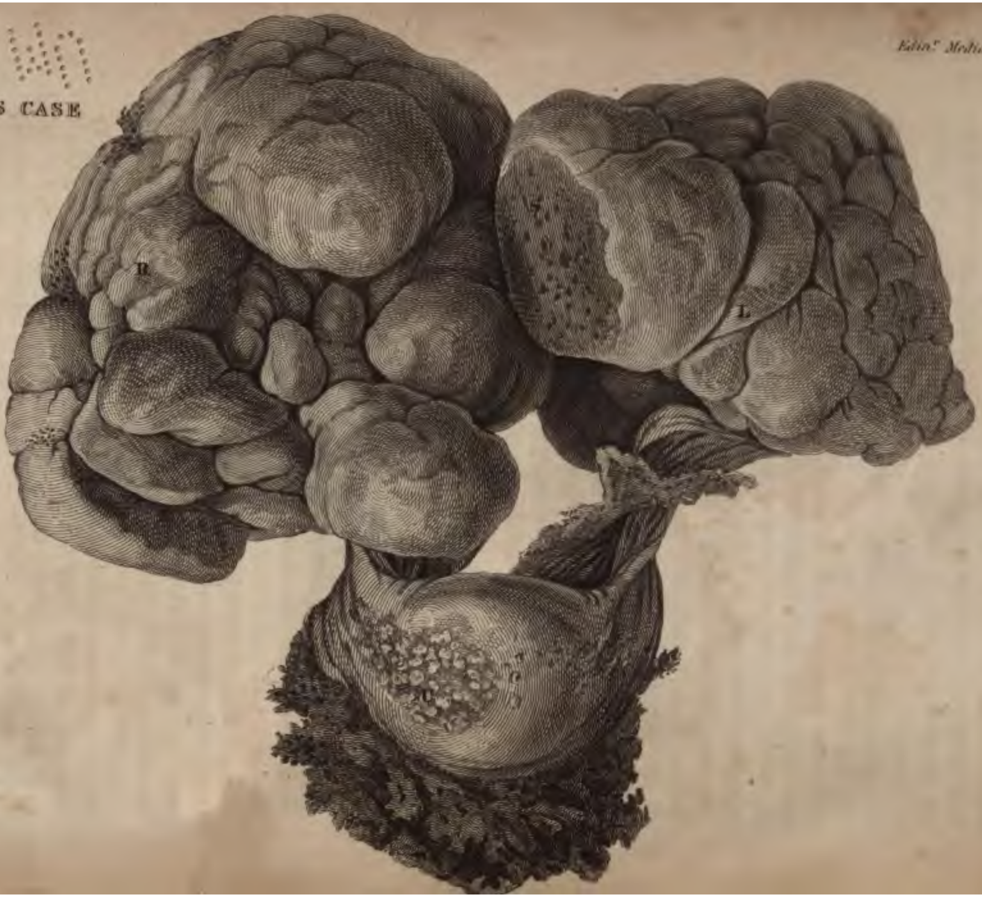
Dr RENTON'S CASE



lated disease of the ovaria, which lately came under my notice. The case I consider interesting, as it presents some curious phenomena connected with the history of that disease in these organs; while, at the same time, it affords a beautiful example of an alteration in their structure, which, so far as I am aware, has not been observed by pathologists, or at least has not been included by them in their enumeration of the diseases to which these organs are liable. The activity with which disease proceeds in the ovary is such, that often irremediable destruction of its texture has taken place before the medical attendant has been able to ascertain precisely the nature of the complaint, or its unfortunate subject is aware of its existence.

The history of the present case affords a very strong illustration of the truth of this remark. If, from the healthy state of the constitution, and from the absence of all symptoms denoting local disease, we may be allowed to infer the sound state of the uterus and its appendages, it would appear that the tuberculated masses, in the present instance, had been the product of disease of only eight or nine months duration. Before detailing the case, however, it may be proper to mention, that I had not an opportunity of seeing the subject of it till a short time previous to her death. I am, therefore, indebted to the kindness of a medical friend, who supplied me with his notes, taken during the period of his attendance; and the history of it, previous to that time, is given upon the authority of a near female relative who remained in close and anxious attendance upon our patient, from the first expression of ailment of any kind, till her death.

A. H. aged 48, the mother of six children, had enjoyed good health till the age of twenty-nine. After that period, she did not think her constitution quite so strong, which she attributed to her having then given birth to a still-born child. Yet though not so robust as before that occurrence, she may be said to have possessed more than the usually allotted portion of health, as she seldom had any complaint, and had not been confined to bed for a day by indisposition, till the commencement of her present complaint. She gave birth to her last child in July 1821, and her recovery in that instance was speedy and complete. In March 1825, she underwent much bodily fatigue, and in consequence of some family misunderstanding, suffered likewise from anxiety of mind. In April, she for the first time complained of what she called a weakness in the right ankle, and of a pain in the left side below the ribs, with great weakness of the loins, and a sense of fulness in the abdomen, particularly towards evening.

It is not mentioned whether the belly was actually swelled;

but as she was obliged to untie her stays sometimes during the day, more frequently at night, there is every reason to believe that some enlargement of the belly took place at this time.

During May and June, she experienced much general debility, and to it supervened great despondency of mind, and her temper, naturally placid, now became remarkably irritable. In this state she continued during July and August, having had, however, more than one smart attack of diarrhœa, attended with extreme pain, which were relieved by fomentations and opiates. The enlargement of the belly had become very conspicuous in July; and about the middle of August, she could feel what she considered hard bodies in the abdominal cavity. This circumstance was mentioned to a medical gentleman, the first who had been consulted, and who prescribed palliatives. In addition, she tried the effects of sea-bathing, with the view of improving her general health; but, as might have been expected, she derived from it no benefit whatever. In conjunction with the general debility and despondency of mind, she suffered much from nausea, which she could relieve by inducing vomiting, and from violent fits of pain in the abdomen and back, particularly during the night. These attacks generally commenced at one, A. M. and continued without abatement till five or six in the morning, after which their violence gradually diminished, sometimes with, at other times without, the assistance of opiates. From the painful and sleepless nights she passed, she was left much exhausted, yet during the day she was able to superintend her household affairs, and even she walked occasionally between Edinburgh and Newhaven, where she was then living. She even recovered to all appearance her wonted looks till the month of October, when she was obliged to confine herself to bed. Similar accessions of fits of pain recurred in the evening, but these were not observed to be either so uniform in their appearance, or so violent in their attacks. In this stage of the disorder, little or no urine was voided, and dropsical symptoms which had been slowly approaching for some time, became greatly more distinct. It is indeed worthy of notice, that the left leg and foot had, about fifteen months before this period, become so swelled as to cause great uneasiness. The right leg, however, is said to have remained unaffected till December, when she complained of the tightness of her lamb-wool stockings.

It would be useless to occupy the attention of the reader with an enumeration of the medicines given, with the view of arresting the progress of the disease. I shall content myself by observing, that, as several practitioners were consulted, and as some difference of opinion among them existed, as to the nature of the case, so there was no lack either in the quantity or variety of drugs employed. The periodic attacks of pain were less distinctly marked as the disease advanced. For eleven weeks previous to her death, she continued in a state of extreme agony, with shorter respites from pain, unless when these were procured by opiates. The great avidity which she manifested for sweet fluids may be worth mentioning. She sometimes consumed at the rate of two pounds of sugar dissolved in small beer in the course of twelve hours. In this state of suffering she continued till February 1826, when the dropsical symptoms having attained an extreme and distressing degree, she expired on the 2d of the month.

Dissection unfolded extensive and remarkable morbid changes in the cavity of the abdomen, and particularly in the womb and both ovaries. An incision made into the abdomen allowed the escape of an immense collection of a dark-coloured, inodorous fluid, having numerous flocculi suspended in it. On laying open the abdominal parietes, the peritoneum presented one of the most complete instances of tubercular disease, which I have had an opportunity of observing. That membrane through its whole extent was so studded over with minute globular bodies, of a grey colour, pretty firm, set in such close and regular order, that not half an inch of its surface was left unoccupied. These bodies were of various sizes, from that of a millet-seed, to the size of a pea. They also varied in colour, form, and consistence; some were cheesy, while others seemed to be gorged with blood. The omentum was converted into one mass of disease, or rather into clusters of tubercles, having a close resemblance to a piece of coral. Hydatids of various sizes were found adhering at different parts to the surfaces of the intestines and peritoneum. The liver, spleen, and pancreas, appeared to be healthy. The kidneys and ureters were sound, but enlarged to a considerable degree. This enlargement had the appearance of having been produced in consequence of the urine being obstructed in its passage to the bladder, by the ovaries pressing on the lower extremities of the ureters. The intestines were of a greyish black colour, and there appeared to be something like constrictions in various parts throughout the smaller of them. Upon the internal surface of the stomach and duodenum, several tubercles were observed.

The ovaria, however, chiefly attracted my attention. They had ascended into the abdomen, dragging with them the uterus out of its natural situation. I regret that I did not ascertain their weight and dimensions, immediately after their removal from the body; but the annexed engraving will in some measure supply that deficiency, while it will contribute to render the description which I am now to give more intelligible. It presents a very faithful delineation of the lobulated appearance of the new growths; while a pretty correct estimate of their size may be formed by supposing them to be three times larger than the representation given in the engraving.

The anterior view presents attached to the broad ligaments in the situations of the ovaries, two large tumours of irregular shape, and lobulated surface. The tumour on the right side extends obliquely about six inches from the side of the *fundus uteri* upward, and is about three inches and a half broad; its circumference is about ten inches; the surface round, lobulated, and pretty firm. The tumour on the left side is more round, and extends about four inches in every direction, but presents the same lobulated appearance. The posterior surface of both tumours, and especially of the right, is still more completely lobulated, and presents the appearance of a number of spherical tumours of moderate size, from about half an inch to two inches in diameter, aggregated together, so as to form one large mass. The interior structure of these bodies is various. A section made of the lower division of the right tumour, shows it to be a uniform grey and red mass, without very distinct traces of organization, but like a portion of liver or pancreas. A slice cut off the posterior surface of the left tumour, presents a homogeneous grey surface, very similar in appearance to the last. A portion cut from the anterior surface of the same, displays a surface generally red and vascular, and many vessels of considerable size, some as large as crow-quills.

From the similitude of the ovarian masses to brain, both in regard to colour and arrangement of parts, I had given the appellation of *cerebral* to this affection, being the most appropriate term, as I conceived, by which this disease can be designated. The traces of vascularity, however, manifested in the section of the anterior surface of the left tumour induced me to alter that term for the less exceptionable one I have employed above. The uterus had in a slight degree participated in this tubercular tendency. From ten to twenty of these granular bodies will be observed upon its body and fundus, as represented in the engraving; but in other respects it was quite healthy. The round ligaments are twisted, an appearance not unusual I believe in ovarian tumours.

Connected with the history of this case, there are two circumstances which are worthy of particular notice. I allude to the extreme rapidity which marked the progress and termination of the disease, and to the periodic accessions of fits of pain to which the subject of it was liable. It is true, a difference of opinion may exist as to the date of the origin of the disease, and it may be contended, that an alteration of structure had taken place in the texture of the ovary, long before the period assigned to it by the patient. That so great a difference in bulk, and such an alteration of structure should occur in so short a period, and in so small a body as the ovary, is certainly one among the many wonders which pathology is every day revealing; but surely the wonder would rather be increased than diminished, by supposing that these changes could have taken place without their giving either local or constitutional evidence of their existence. I am the more inclined to be of opinion that this disease was of a recent date, likely originating not earlier than in the months of May or June, from the fact of the constitution of the patient having been then, for the first time, affected, as well as from the circumstance of her having likewise experienced great depression of spirits, accompanied with variations of disposition and temper, states of mind, I am persuaded, which, if they do not precede, generally attend morbid changes of structure in most of the textures and organs of the body.

Another circumstance, worthy of notice, was the periodic accessions of fits of pain to which she was liable. By a reference to the history of the case, it will be observed, that the patient was able to superintend her household affairs during the day, till about three months previous to her death, while she invariably suffered the most excruciating pain during the night. Whether this nocturnal return of pain be a constant feature in the history of this species of tumour in whatever texture it occurs, or depends upon some peculiarity in the organ affected, or whether, for its production, it requires their conjunct influence, I will not attempt to decide, although I think I have observed something similar in instances of fungus hæmatodes. The fact is curious, however difficult the explanation may be; and it is sufficiently important to deserve notice, as it may assist us in our diagnosis. As I have not been able to procure an accurate report of the state of the circulation, secretions, and excretions, I have judged it better to omit them altogether. It is proper to notice that suppression of urine occasioned by the mechanical pressure of the ovaria upon the ureters, was a prominent symptom of the complaint, and might have led to the notion of a disease of the kidney or bladder.

Before concluding, I may remark that any operation for the removal of these tumours would have been liable to serious objections. Independent of the difficulty of removing a morbid growth not from one, but from both the ovaries, or rather of removing both these organs entirely,—the uncertain event of such an operation must have been rendered infinitely more doubtful by the fact, that the peritoneal covering of the womb, and the peritoneum in general, were very generally affected with tubercular bodies. Incisions in such a membrane, and their necessary effects, would doubtless have accelerated the fate of the patient.

The engraving represents the uterus and the tumours in the site of each ovary attached to it by the Fallopian tubes.

U, The uterus, the anterior surface covered with tubercles.

R, The tumour of the right ovarium, consisting of many bodies, various in size and shape, aggregated together.

L, The tumour of the left ovarium smaller, but of similar structure.

S, A section of part of the left, where it was penetrated with numerous vessels, of considerable size.

St James's Square,
5th June 1826.

ART. V.—*Some directions for making and keeping Morbid Anatomical Preparations in hot Climates.* By JOHN DAVY, M. D. F. R. S.

IT is too generally supposed that the making and keeping of anatomical preparations in warm climates is almost impossible, or attended with so much difficulty as to be practically impossible, with the ordinary means within the reach of medical officers.

This is a very mistaken notion. The changes which animal matter undergoes at a temperature between 80° and 90° Fahrenheit, (the average maximum of the highest temperature in the hottest seasons, even in intertropical climates,) do not differ in *kind*, from those which occur at a temperature between 45° and 55°1′, and a *fortiori* between 55° and 70°, which may be considered the average temperature of the winter and summer seasons in Great Britain. The difference then in the changes is chiefly in *degree*; in a hot climate they take place more rapidly than in a temperate one, twice or thrice as rapidly, according to the elevation of temperature. This should always be kept in mind as a maxim and principle; and to insure success in making anatomical preparations, the rapidity of change of animal matter must be met with proportional quickness and energy of the conservative processes of art opposed to the destructive ones of nature. With the same view and against the same tendency to change and decompose, besides quickness, great neatness and cleanliness are requisite.

Every dissection should be conducted in a regular and scientific manner, according to a certain method, and with definite objects in view. The principal objects of all dissection are three; the detection of the effects of the disease and the cause of death; the removal of diseased parts for preservation; and the acquisition of general anatomical knowledge. Neatness, and cleanliness, and method, conduce equally to these objects. Attending to them, obscurity, confusion, and error are avoided; the pursuit loses as much as possible its disgusting aspect; it gives information of a satisfactory kind; excites interest powerfully; and zealously pursued becomes almost fascinating. Farther, when the dissection is conducted on these principles, it is the source of much valuable instruction. It makes the hand dexterous for surgical operations; it produces caution in deciding upon *post mortem* appearances, which are so often deceptive; and habituates the eye to the nice discrimination of what is sound in structure, and what is diseased.

When any morbid appearance presents itself, the part displaying it should be carefully examined before it is removed; its situation should be noticed, and its connexions traced. If it is considered worthy of being preserved, with that intention, it should be dissected out, so as to appear to the best advantage; to require as little explanation as possible; and to be, by itself, as intelligible as possible.

If dissected out, neatly and cleanly at once, free from extraneous, adipose, cellular, and muscular substance, &c. much trouble will be spared and time saved. Generally speaking, indeed, the suggestion just given cannot be too strongly inculcated. For the morbid part to become a good preparation, it should be put out of hand at once; and nothing should be left that ought and can be removed by the knife and scissors. Delay breeds neglect and forgetfulness; the nicer peculiarities of the diseased part are forgotten; after a time it ceases to excite interest; as a confused mass putrefying or bordering on putrefaction, it is a loathsome and worthless object; and thus, in consequence of not having been finished at once, it ends in being thrown away; and an aversion, rather than a fondness is acquired towards pathological anatomy.

The present remarks are applicable to all kinds of anatomical preparations, but more especially to those which it is intended to keep in spirits, which experience has proved to be better adapted to the preservation of moist preparations than any other liquid yet tried.

The methods of proceeding in preserving preparations, must, to a certain extent, be modified agreeably to the nature of the morbid parts, and agreeably to the intention of the anatomist.

If the diseased part is small, and it is wished to preserve its colour, as a portion of inflamed and ulcerated stomach or intestine, it should be immersed immediately in strong spirit; and instantly put up as it is intended it should remain. After a month, the spirit may be changed for fresh spirit, and the mouth of the vessel should be firmly secured. The blood in the part will thus be coagulated and preserved; the shape will be retained without unseemly distortions, which, when once rigid, are not easily removed; and the preparation is fit for the shelf of the museum without any farther trouble.

Preparations of the brain, spinal cord and nerves, should be treated in the same manner, and so treated they are most easily kept.

Thus also should be managed preparations of the eye, pleuræ, peritoneum, testes and their tunics; and, in fact, all such parts as are liable to be injured by maceration in water, and incipient putrefaction.

On the contrary, parts containing much blood, as the liver, kidneys, lungs, heart, or stained and discoloured with blood or bile, &c. as the blood-vessels and gall-bladders, &c. or smeared with a lubricating fluid, as the *aspera arteria*, primæ viæ, synovial membranes, &c. should be allowed to macerate in water till fit to be removed into spirits; of course, the hotter the weather so much the shorter must be the time of maceration, and so much more frequently must the water be changed, as often as daily, or twice or thrice daily. And if the part be bulky and much gorged with blood, to insure success, to prevent putrefaction during the period of maceration, either a mixture of equal parts of proof spirit and water, or saturated brine, should be used in place of water alone.

If the latter (the brine,) is to be employed, it should be in readiness before the dissection is commenced, and the part should be immersed in it as soon as it is taken from the body; farther, it should be exposed as short a time as possible to the air, and should *not be washed* before it is put into the brine.

With these precautions, the part may be macerated till all the soluble matter is removed, (changing the brine twice or thrice,) and it is rendered fit for keeping either in spirit or in brine. If the former is preferred, it should be formed of seventy parts rectified spirit, and thirty of water; if the latter, the brine should be saturated with common salt. The proportion of rectified spirit just mentioned, is found to answer best for preserving preparations in general; and it is hardly necessary to add, that unless the brine is saturated, it will fail of the desired effect.

For the useful purposes of a museum, it is necessary that the part to be kept should be not only carefully and neatly dissected out, but also carefully and neatly put up, and *that imme-*

diately, and as it is intended it should appear on the shelf. If this be neglected at the moment, the season for doing it in perfection is lost. A preparation crammed into a bottle, just large enough to hold it, or thrown into spirits in a large vessel, as has been too often done without attention to suspending it in a natural way, that it may be properly seen, becomes (unless it be some very simple structure) misshapen, distorted, and confused. A preparation in such a state no skill can afterwards amend; as is very well known to those who have had occasion to attempt the annoying task of endeavouring "to make something" of a preparation, perhaps highly interesting in itself, which has been thus neglected in the first instance.

Many, perhaps, will think that the measure just recommended is not easily carried into effect; that to accomplish it much art and skill are requisite; and that glass vessels in plenty, and of various sizes, are indispensable.

This, fortunately, is not the case; only very moderate skill is requisite, such as every medical man ought to possess, and must possess, if he is fond of his profession, and only tolerably zealous in the pursuit of it. And instead of many glass vessels, one or two are amply sufficient for holding all the preparations a professional man is likely to be able to collect in one year in the course of his ordinary practice.

A glass vessel of the capacity of a gallon, with a large mouth closed either with cork and bladder, or a glass stopper, is very convenient for the object in question;—and it may be desirable for two of them to be constantly provided, one for the purposes of maceration, the other for those of preservation. The preparation neatly dissected may be advantageously attached by a thread to a piece of cork that will float on the surface of the spirit, and keep the preparation properly suspended; or, if the preparation is lighter than spirit, as a portion of lung containing air, the same object may be effected by fastening it to a bit of lead.

In this way a great many preparations may be introduced into the same vessel,—indeed the vessel may be almost filled with them without detriment, provided each is free, and not pressed against by another, which is easily managed by using threads of different lengths. This method, it may be added, is particularly well adapted for sending preparations to England, on account of its economy, the little space required, and its security. Using it, there is no danger of the preparations being left dry and ruined by the capillary action of threads (having their ends out of the bottle) sucking up the spirit and draining the vessel; nor is there any danger of atmospheric air finding admission, provided the glass stopple or cork with which the bottle is closed is covered with moist bladder, firmly tied down, and smeared with oil when dry. Here a caution may be given, that, when bladder is thus used, the bottles should be placed out of the reach of rats, mice, and cockroaches, animals very fond of this membrane, and who attack it whenever it comes in their way.

Numbers written with a lead pencil on slips of paper, parchment, wood, or even the cork itself, may be introduced with the preparations when they are numerous, and there is any apprehension of mistake; which numbers will of course have reference to a descriptive list that should accompany the preparations to England.

Relative to the making of dry preparations in hot climates it will be sufficient to offer a very few observations. The unexperienced in these climates may fancy the task in question exceedingly easy, from a common and erroneous association of the ideas of proximity to the sun and parching heat. They will find it, however, a more difficult labour than can be imagined *a priori;* and for this reason, that the connexion of heat and dryness just now alluded to is in most hot climates of rarer occurrence than the association of high temperature with a great degree of humidity. This latter happens when the wind sweeps on its way over a great extent of sea, and on its passage becomes loaded with moisture, as is the case with the S. W. monsoon along the coast of India, the S. E. or Sirocco in the Mediterranean, and the sea breeze in the West India Islands. During the prevalence of these winds it is very difficult to dry any anatomical preparation, and impossible, indeed, unless recourse is had to some helping circumstance, as exposure to the direct rays of the sun, or the dry heat of a charcoal fire. On the contrary, when the atmospheric heat is accompanied with dryness, as it always is, when the wind comes over an extensive tract of country, such as the land-wind in India, the N. W. wind in the Ionian Islands, the S. E. on the western shore of Southern Africa, then the making of dry preparations is most easy; exposure to the wind is by itself sufficient. When dry, in every instance, the preparations should be varnished to defend them from the action of the atmosphere, and from the effect of vicissitudes in point of humidity, and then they should be carefully packed up in dried paper in a box of tight construction, to be sent home by the first opportunity.

As dry preparations of morbid parts, with the exception of bones, are of comparatively little value, nothing that is particularly interesting capable of being kept in spirits should be preserved in any other way.

It is not considered necessary to give any hints respecting the methods of making injected preparations. Those who have sufficient zeal for anatomical pursuits to engage in this undertaking, will have no difficulty in carrying it into effect wherever they may be, with the knowledge they must previously have acquired and possessed of the same apparatus that is requisite in temperate climates.

In concluding it may be remarked, that, simple and easy as are the means just now described for making and preserving morbid anatomical preparations in hot climates, they are quite adequate, and with ordinary care can never fail to succeed.—Trial alone is requisite to produce conviction of their efficacy.

Corfu, Ionian Islands,
17th Nov. 1825.

ART. VI.—*Practical Observations upon the Yaws.* By JAMES RANKINE, M. D. Licentiate of the Royal College of Surgeons of Edinburgh.

FRAMBŒSIA, or yaws, is a disease which affects a person only once in his lifetime, and is very common in our West India colonies; into which it was formerly imported from Africa. In this country I believe it has scarcely ever been known, consequently few physicians have had an opportunity of becoming acquainted with it. It is indeed a disease altogether so disgusting and so infectious, that few, even possessing opportunities, pay it that attention necessary for its investigation; and, in the West Indies, we too often find that its cure is left solely to the care of one or two old women upon the estate; a practice we cannot too highly censure, even although it may be little fatal in its *immediate* consequences.

The yaws never spread but from communication, or the immediate contact of virus applied to a part of the skin denuded of cuticle, or where the cuticle is extremly thin, as upon the lips and genitals; hence, it is often propagated by the cohabitation of the sexes, and by diseased mothers to their children at the breast; which last circumstance, from the infant appearing diseased almost from birth, has led to the erroneous supposition that the fœtus may become infected in its mother's womb; a supposition which modern experience has contradicted, not only in this, but in all other diseases.* When the virus of a yaw, however, is communicated to a part of the skin denuded of cuticle, and thereby ulcerated, or to a sore already formed, the disease may subsist a considerable time without any eruption on the skin, which seldom appears until the discharge from the sore is restrained by repellents. The first certain sign of the real disease is the lips of the ulcer and the skin surrounding it assuming the peculiar appearance of a yaw. These ulcers are always very troublesome, spread rapidly, and have a peculiarly granulated appearance. Their continued drain tends much to prevent the disease from forming properly upon the skin, and to reduce the strength of the patient, which is so necessary for his recovery. This ulcer is what the negroes, in their jargon, call by a word signifying the *mother yaw.* The appearance of a true yaw on the skin is so well described by Celsus * under the title of συκωσις, that one might almost suspect that he meant this same disease, did he not confine the seat of his sycosis to parts of the body covered with hair; indeed, a full grown yaw resembles nothing so much as a soft dried fig. A yaw of this description, if left to itself, does not ulcerate, forms no slough, (that is, unless a living excrescence, or fungus, covered with inspissated mucus, be so termed,) and leaves no cicatrix or mark upon the skin after it. If any slough be ever formed it is the effect of escharotic dressings.

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* I do not mean, however, to say that a constitutional predisposition to certain diseases may not be contracted in the womb of the mother.

Mothers suckling their children with yaws about their lips, and who have themselves undergone the disease, and therefore no longer subject to it, very often contract, from the acrimony of the virus, a phagedenic ulcer of the breast, which, by degrees, not only destroys the nipple, but a large portion of the breast also; and sometimes even both breasts are affected in the same manner. In consequence of absorption from these ulcers, severe pains of the limbs, nodes of the bones, and gummatous swellings of the joints, frequently follow. But although this complaint has been communicated by, and mistaken for, the yaws, it will not communicate the specific disease, but only ulcers partaking of its phagedenic nature, and probably following the same course of morbid symptoms.

Rheumatic pains often occur before the eruption of yaws, and abate as the eruption proceeds; but fever is not to be considered as necessary to the yaws either as cause or effect. The yaws constitute no crisis of a fever, neither does fever accompany the eruption as a symptom. Persons affected with the yaws are not more exempted from an attack of fever than others, but fever has no necessary connexion with the former. Cutaneous eruptions arising from critical deposition after fever, or attended by fever as a symptomatic effect, sometimes put on such anomalous appearances as to occasion much deception; of this fact it would be needless for me to cite examples, as every physician of experience must have often met with them. When, therefore, cutaneous disease occurs preceded by, or accompanied with, fever, so as to be *inseparably* connected with it, however much it may resemble the yaws, we need not hesitate to pronounce, that it is not the disorder, which is never necessarily attended with febrile symptoms.

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* P. 224, edit. a Dickinson, Edin. 1814.

During the course of the disease there are generally several successive crops of the eruption, with longer or shorter intervals of apparent health between each; and sometimes the yaws will remain latent in the body after being apparently cured for many years. "I have known one instance of a very large yaw," says a late friend of mine, who has practised for upwards of half a century, and has had much experience in this disease, "appearing in the skin of a young woman at the reputed distance of nine years after it was supposed she had been completely cured of the disease; and another of an elderly male, on whom the yaws broke out very abundantly, at least twenty years after he had had the disease in the usual manner."

To abridge the naturally long period of the disease, or to render it more mild, inoculation, as in small-pox, has been suggested by some; and there is no doubt that inoculation, with the virus of a yaw, would most certainly be useful, in so far as it would afford an opportunity of the choice of subjects possessed of strong and vigorous health, thereby enabling them to throw off the disease effectually by the skin, through which all those bad consequences generally following this disease, when it attacks weakly subjects, would in some measure be avoided. Inoculation has, however, scarcely ever been practised by white practitioners; although some in inoculating for the small-pox have undesignedly communicated the disease in this way, by taking matter from the suppurated incision of a person who, at the same time, was affected with the yaws. This happened in one instance to my late friend Dr Quier, who was not aware of the circumstance till afterwards, when he discovered the yaws on a part of the body concealed by the clothes. About six weeks afterwards, when the patient so inoculated was perfectly well of the small-pox, the yaws made their appearance. The subject was a sucking child in perfect health, born of a domestic and well-fed servant. It soon recovered. A few facts of this description would be sufficient to determine that once greatly controverted point of the possibility of any other infectious disease being communicated along with the small-pox virus. And, indeed, the axiom, brought forward by John Hunter, that no two actions can take place in the same constitution, nor in the same part at one and the same time, is quite contradicted by the well authenticated fact, that the small-pox eruption, although it will clear the skin of such yaws as are then present, will not cure the disease; another crop will succeed as soon as the patient recovers his strength. The advantage to be expected from inoculation with the yaws must, therefore, depend upon the choice of subjects capable of supporting a disease so debilitating, and of such long duration; and if, in order to enable the patient to undergo the disease, and to carry him through it with safety, any preparations be thought necessary, it can only be found in nourishing diet. Animal food, warm clothing, and proper exercise, where the age of the patient will permit, will invariably be found the most effectual means for supporting the strength, and ultimately bringing the disease to a happy termination.

In nodes of the bones, contraction and distortions of the limbs, gummatous tumours about the joints, ulcers of the throat and legs, callosities and fungous excrescences of the palms of the hands and soles of the feet, we see the bad effects of ill-cured yaws; and when they arise from this cause they will not yield to the use of mercury with the same certainty as when they have a venereal origin. The monstrous enlargements of the feet and legs so frequently to be met with in negroes, a disorder which, from the resemblance of the part affected to the leg of an elephant, has been generally called *elephantiasis*, has no affinity to the *elephas*, *elephantia*, or *elephantiasis* of the Greeks, or the *lepra* of the Arabians; but I believe it to be a disease never occurring but in consequence of the yaws. Of this disease there are two distinct species. In one the lower extremities become enlarged, and often ulcerated; the skin is thickened, and its papillæ grow horny, and of the size of the quill part of a small feather. This species is not attended with fever or much pain. In the other, the callous affection of the skin is not so apparent, but the limb becomes œdematous, and is affected periodically with a painful inflammatory increase of bulk, apparently from a surcharge of humour, or probably an effusion of lymph, accompanied with an affection of the inguinal glands, and attended with fever, which generally lasts for about the space of three days, and then terminates in a copious sweat, when the temporary symptoms subside.

It is not to be inferred, however, because this disease has sometimes appeared in white and other subjects who have been supposed never to have had the yaws, that, therefore, the yaws have not preceded its appearance. Abundant proofs are to be had of this disorder having occurred in such a manner as to have occasioned no particular notice; or, if it did so, to have been taken altogether for some other complaint. Neither does it certainly follow, that, because this affection of the lower exremities, described by some as *not to be mistaken*, is found in Egypt and some other countries, wherein we are not informed that the yaws are to be met with, this disease never occurs there. From the constant intercourse betwixt these countries and the negro nations from the earliest periods, and the frequent importations of slaves from amongst the latter, it will appear scarcely possible that the yaws should not have been introduced there; more especially, when we consider that very few cargoes of slaves used to arrive, in our West India colonies, from Africa, without at the same time importing a fresh cargo of infection. It is not, therefore, improbable that this disease may have as many names as there are different languages in Africa, and that it may have been comprehended as a species under the general name of leprosy, or some other cutaneous disease. It is also undoubted, that some people actually infected with the yaws have passed through the disease without having any eruption on the skin, the morbid humours having been, as it were, drained off in the copious discharge of one or more ulcers situated upon the legs. Those ulcers have always a red granulated surface, the most certain criterion of the real disease, of which the true nature, for want of sufficient knowledge, has remained undiscovered. If this drain be stopped, which in general may be done, the eruption on the skin will soon appear; and as this is the safest and best course of the disease, it ought to be promoted by all *proper* means in our power; and the first step towards this, is the suppression of the discharge, which, if neglected, not unfrequently entails an incurable ulcer on our patient for life.

The yaws, if left to themselves, generally terminate in about three years, and often in a much shorter period. The excessive degree of indolence and disinclination to motion, which peculiarly marks this disease, should be counteracted as much as possible by the most obvious means; and if any recourse be had to medicine, it ought simply to be diaphoretic. The negroes often use cold bathing in fresh water, and I have no doubt sometimes injudiciously. Warm bathing has been also tried; but its debilitating effects are not sufficiently compensated by the small increase of the cutaneous discharge, from which alone we may expect any good to be derived. Bathing in sea water has been found useful, and perhaps bathing in warm sea water would be more so.

When a yaw has arrived at its full growth, the negroes say that it is ripe, and they begin to apply their dressings, which seem to be much of the same nature as those said to have been used on board of slave ships. They are all repellent, and have often the effect of prematurely drying up the eruption. But though the skin may become clean, the disease is not cured; and it will appear again in some one of the forms before-mentioned, as consequent upon ill cured yaws.* If a yaw be permitted to take its natural course, the crust in time becomes dry in the middle, and falls off; the natural skin will then appear, which increases daily, until there remains no more than a dry scab of about a line perhaps in thickness, and of the form of the margin of the original yaw, which at length likewise drops off, and the place is healed.

In the cure of recent yaws mercury is generally found injurious. "I have been under the necessity of using it" says Dr Quier "sometimes under peculiar circumstances; but I have always done so with the view of salivating, and have, therefore, had recourse to such means as would procure, in the shortest time, the most copious flux, with the least possible quantity of mercury." He, however, attributes nothing to the effect of the mercury beyond the evacuation it is meant to produce; and if such evacuation could be produced with equal facility, without mercury, and by means less injurious to the constitution, he would prefer it. It is obvious, however, that few could stand this method of treatment. The chronic affection of the bones are generally found to yield to an alterative course of mercurial and antimonial medicines. The preparations generally found the most useful are calomel and sulphur of antimony, or Plummer's pill, with decoction of sarsaparilla or guaiacum. But in cases of ulceration of the throat from this disease, all medicines are too frequently found unavailing.

In cases of pains, contractions, nodes, and other tumours consequent on ill-cured yaws, in conjunction with alterative medicines, the most beneficial effects are often obtained from medicated baths and diet, where the means of using them can be procured. Aretæus mentions the use of viper's flesh in the cure of *Elephas*, but seems to give little credit to its efficacy. *Viper broths* have been prescribed both in ancient and modern times for the cure of similar diseases. I am acquainted with one remarkable case, of extreme decrepitude and misery, in a negro woman, who was perfectly restored to health, after having been, unknown to herself, fed for several months almost entirely with the fresh flesh and broth of yellow snakes. There is a story told of a Spaniard who, being expelled from society on account of being affected with the leprosy, supported himself by eating the raw flesh of lizards, and became thereby perfectly cured of the disease.

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* The pernicious practices formerly resorted to on board of slave ships for repelling the eruption when the negroes were found infected with the yaws, and the custom of afterwards anointing them with lamp black and palm oil, are too well known and attested to admit of doubt. The consequences were dreadful. The pains the poor creatures underwent were excruciating, their limbs often becoming so contracted that they could not walk, and scarcely stand. The first negro my friend —— ever possessed was in this state; which complaints, however, completely yielded to the use of the warm bath, and a course of diaphoretic medicines, which brought on an abundant crop of yaws.

For softening the callosities of the feet and hands, we may use a cassava poultice, or a cataplasm of warm cow dung, which latter will be found very useful, and not to be despised on account of its simplicity. At the same time, we may use a bath of quicklime and water, taking care that it be not too warm, otherwise the upper parts of the feet will be blistered, and our expectations thereby immediately frustrated. The negroes are very fond of keeping their feet in a bath of their own preparation, even for nine or ten days; but this ought not to be permitted without some degree of caution, as the ingredients which they use (the dumb cane, for instance, a caustic species of *arum*,) are sometimes so acrid as to occasion very serious consequences, even sphacelation of the feet. After the use of the cataplasm and bath, the callosities may be pared, or peeled off, and the parts remain free from inconvenience, if not for ever, certainly for a considerable time.

Some have recommended the use of the powder of corrosive sublimate for the purpose of extirpating or eating out the fungous excrescences; but this is not always free of danger, as it occasionally penetrates too deeply, and renders some apprehension of supervening tetanus—a disease brought on often by very slight causes in hot climates. If, however, this method of cure is preferred, burnt alum, or verdegrise, will answer the purpose fully as well, and without any danger.

Hanley, January 3, 1827.

ART. VII.—*Remarks on the Epidemic Dysentery of the Autumn of* 1826 *in the South of Ireland.* BY ALEXANDER M'CARTHY, M. D. Physician to the West Carbery Dispensary, county of Cork.

THE summer of 1826 was remarkable for its uniform dryness and high temperature. The absence of moisture was particularly felt in the south of Ireland, where moisture is so prevalent, from the extent of the Atlantic that bounds this part of the island. The soil of this district is shallow, and there is much rock; hence a dry season always proves very destructive to the crops. From the 1st March to the 17th August there fell but a few showers of rain. The barometer stood all this time in a low valley, at 30° 27′, or thereabouts; whilst the thermometer in the shade at mid-day was about 80°. Vegetation was seriously, if not altogether checked; the springs and rivers towards the latter part of July were nearly dried up, and the quality of the water very much impaired. During this summer political causes tended very much to increase the calamity of the season. The commercial body in England suffered a severe shock from a variety of causes, and the manufacturing population in the south of Ireland were thrown into the greatest distress. Add to this the general want of employment for a dense and overgrown population, whilst the price of food increased to a most alarming height. Such was the state of things in the south of Ireland in July 1826, when disease became prevalent, and put on the character of an epidemic.

About the 1st of August fever disappeared altogether in this district; and dysentery, attended with some cases of cholera, became almost general. Pneumonia, and all the other phlegmasiæ, entirely vanished, and the physician scarcely met a case of disease that did not assume the form of the epidemic. This property of communicating to all other diseases its own character was remarked by Sir John Pringle; for he states, that, previous to the battle of Culloden, the English army suffered from a similar epidemic, which entirely subsided on the winter's setting in, and which observed this peculiarity of the absence of all other disease during its prevalence. In his statement that it was contagious, however, I believe he was greatly mistaken. The writings of Sydenham also contain various illustrations of the same fact, in the history of the epidemic dysenteries that appeared successively in London.

In forming our views on this very serious disease, it would be impossible to give any thing like a sketch of the history of an epidemic in Ireland, without adverting to the situation of the inhabitants. Whatever may be the causes that have reduced this island to its present deplorable state, there can be no doubt of one fact, that the great bulk of the population present a mass of misery and wretchedness, unequalled, I believe, in any other part of the world. It is a melancholy picture of society to witness the increase of wealth and luxury on one side, and the greatest want and wretchedness on the other; to meet famine and exhaustion in the great body of the people in a country that produces as much food as would afford a full supply for once and a half its present population; to see the granaries full of corn and flour, and the great body of the people scarcely existing on a half supply of bad potatoes. Such is the miserable situation of the Irish, a race of people distinguished for their intellect, and above all for their resignation and patience under afflictions the most trying.

The present autumn was remarkable for the extent of epidemic dysentery; it attacked all classes of society, but chiefly the poor people. In some its attack was sudden; in others slow and insidious; and in not a few a slight attack of cholera was the first approach of the disease. If the symptoms were neglected for the first two or three days of the attack, the disease was sure to put on a very obstinate character; if it was met by judicious measures on its first approach, the subsequent symptoms were more easily súbdued. The heat of the summer had a manifest influence on the biliary secretions; and hence it was observed, that the functions of the liver were more or less disturbed in every case of the epidemic.

It appears to me that the views of dysentery given by Dr Pemberton are calculated to do great mischief; and if I trusted to his directions in the treatment of this epidemic, I should have cause to regret it. Cullen's doctrine of spasm again, is too partial, and therefore erroneous. Several very correct views on the pathology of dysentery are found in the work of Dr James Johnson; and I can bear testimony to the value of his observations in the treatment of this epidemic. Though I differ in some points from Dr Armstrong, I must say he has made some useful remarks on dysentery.

The first point to be ascertained by the physician is the state of the abdominal viscera with respect to inflammation. If symptoms of inflammation are absent; if the pulse is moderate; if the secretions from the liver are vitiated; if the stools are bloody and followed by tenesmus; if the tongue is loaded with a brownish crust in the centre; if the skin is dry and arid, we may look to a tedious attack of dysentery, if prompt and decisive measures be not adopted. There are some practitioners, as well as writers, who place great confidence in the abstraction of blood in this disease; and I must confess, that my own opinion was favourable to the early use of the lancet. My experience in this epidemic, however, has considerably altered my views on this subject. I am satisfied that very few cases were benefited by bloodletting; that in several it did mischief; and that in all it rendered the subsequent debility considerable, and the convalescence slow and tedious. It is true there are circumstances that demand the prompt and decisive use of this remedy; but in the present epidemic it was rarely required. There was a debility in the circulating system that the experienced physician felt so urgent as to caution him against this practice.

The first cases I met with were treated on Dr Pemberton's plan, and I soon discerned that my efforts did but little to alleviate the sufferings of the patient. I was obliged to turn my attention to the bold and decisive practice of Dr J. Johnson in tropical climates, in this disease; and I soon found that I had reason to be gratified at the result. In general the disease yielded to this mode of treatment, if adopted sufficiently early, so as to check its progress before the strength was much impaired, or the inner coats of the intestines were materially injured by long-continued inflammation. I have observed above, that the liver appeared the organ on whose disturbed functions this epidemic depended. I have stated causes that have in all ages, and in all countries, tended to produce a morbid state of this important organ in the digestive system of man; and it was by turning my attention simply to restoring the healthy functions of this viscus that I have been uniformly successful in arresting the worst cases of the disease.

I have already alluded to the views which I entertain of blood-letting, and the rules that guided my practice on this head. In very few cases have I found it indicated. My chief reliance was on the united powers of calomel and opium. But to produce the effect of quickly allaying the irritability of the general system, and, at the same time, to restore the healthy action of the liver, as well as to assist in the removal of scybala, it was necessary that these important medicines be given in full and liberal doses. I generally commenced with an adult, by ordering a scruple of calomel, with a grain and a half of powdered opium, in the form of bolus, with a small quantity of aromatic confection. If the pain and tenesmus were relieved by this, which generally happened, I gave the patient a draught of castor oil, with a small proportion of tincture of senna. Fomentations to the abdomen, and in some cases a blister, was necessary. Next day, if I did not succeed in relieving the pain, the bolus was repeated with two grains of opium, and, at the end of six hours, a saline mixture of sulphate of soda, powder of ipecacuan in peppermint water, and a little tincture of ginger was given every fourth or sixth hour. The sulphate of soda was found to possess peculiar power in allaying irritability of the colon and rectum; and in very mild cases the cure was trusted to it and opium alone.

That the large doses of calomel were safe and effectual in the cure of this disease is a fact that I can verify from the experience of many hundred cases: and, since I commenced its exhibition in this form, I can faithfully declare, that I have rescued some of the most hopeless and alarming cases from death. I do not mean to say that it is necessary to prescribe this active medicine in such full doses in all cases of dysentery. Far should I be from inculcating such a plan; but I maintain, without fear of contradiction, the safety and value of this plan in alarming cases, and the certainty it gives of arresting their fatal progress. One of the worst cases I remember was a boy of 14 years; and though his case was so desperate that his friends gave up all hope, yet he was saved by scruple doses of calomel with opium morning and evening.

It is worthy of remark, that in very few instances did the calomel produce ptyalism. One observation may merit attention. As soon as the liver assumes the healthy secretion, and the bloody stools diminish, we must also give up the calomel. If it is given after this we incur all the risk of subjecting the system, in a state of great debility, to the horrors of mercurial irritation. This is the point that requires caution on the part of the practitioner—*sunt certi denique fines.* Beyond these the use of calomel will be dangerous. At this stage of the disease I trusted to castor oil, with and without Dover's powder; and I found an astringent mixture, containing tincture of catechu, chalk julep, and tincture of opium, very serviceable. The patient's diet also required strict attention, and a flannel roller round the abdomen was useful. The tonic bitters, such as cascarilla, colomba, and gentian, were variously prescribed, according to circumstances, with and without carbonate of soda. This latter treatment was necessary for some time, as the slightest attack of the epidemic left the patient's digestive organs weak for a considerable time.

I have thus thrown together, in a hasty manner, a few scattered observations on this epidemic, which may not be unacceptable to your readers.

Skibbereen,
27th September 1826.

Art. VIII.—*Observations on Bronchitis, chiefly relating to its Pathology and Treatment.* By H. W. Burrell, M. D. Assistant-Surgeon 72d Regiment.

It would be superfluous to enter into a detailed history of bronchitis, after the admirable description of it by Badham, Hastings, and Laennec. I shall here merely allude to certain points regarding the pathology and treatment, which have not, I think, been sufficiently attended to by the practical physician.

Bronchitis may be said to consist, in a more or less extensive inflammation of the mucous membrane of the air passages, from the upper part of the trachea to the minute ramifications of the bronchia. It admits of several varieties, which derive their characters from ;—

1st, The extent of surface occupied by the inflammation.

2d, The more or less deep-seated nature of the inflammation.

3d, Its idiopathic or symptomatic character, with the degree of activity with which it may be carried on.

4th, The local and general peculiarities of the patient.

All the modifications of the disease may be comprehended under the terms severe and mild acute. The correctness of this division, however, as I shall hereafter endeavour to show, rests not altogether on the absolute amount of inflammation of the bronchiæ, but also on constitutional and remedial interference.

Bronchial inflammation is much more frequent than is generally supposed. Our attention has been drawn to its severer varieties; but there is now no question that it forms a part of the greater number of cutaneous diseases, as well chronic as acute.

Dissection shows that a considerable degree of it occurs in fever, and other diseases where its presence was not at all suspected. In nearly all diseases in which the class of mucous membranes is engaged, the bronchial membrane has commonly its share of the disease; and the elimination on the surface of any specific morbid poison, the venereal not excepted, generally involves that of the bronchia.

It is extremely probable that a succession of common catarrhs in early life establishes that predisposition which determines a severe and fatal bronchitis in old age. The old soldier, from repeated catarrhs, is often the subject of chronic cough and dyspnœa, which commonly arise from a chronic or subacute inflammation of the bronchia. This, while stationary, interferes little with his general health; but, if converted into an acute form, is of a much more formidable nature than any of his previous pulmonary diseases. Bronchial inflammation occurring in the shape of common catarrh is a much more frequent cause of phthisis, and other fatal pulmonary diseases, than is generally imagined. Any latent disposition to the formation of tubercles seems to be roused nearly in the same way as the disease of the mesenteric glands by intestinal mucous inflammation. I have generally observed the subjects of asthma and long protracted pectoral disease, not of a phthisical nature, to be of a temperament approaching the melancholic, of an originally firm fibre, and inferior general excitability, proving, in no unsatisfactory way, the numbers who, differently constituted, have fallen victims to the same diseases.

I am not aware that any particular age, constitution, or temperament, predisposes to attacks of bronchitis when it occurs as a primary affection. It seems to have the same indiscriminate range with other pulmonary diseases, but perhaps attacking more readily the sanguine and plethoric. Physicians, in general, have stated the phlegmatic to be more especially liable, and have rather erroneously imagined this condition as in some measure essential to it. There can be little question, that a lax plethoric habit is the least propitious to a favourable termination, but it is certainly not more the subject of bronchial mucous inflammation than others. This error may be, in some measure, accounted for by the pale, anxious, and exhausted appearance of bronchitic patients, who, unless possessing predominant marks of a sanguine or melancholic temperament, have commonly a more or less phlegmatic hue of the countenance; and by the fact, that the most severe and fatal cases are generally those in which the acute attack supervenes on a chronic inflammatory state of the mucous membrane, when the aspect becomes languid and unhealthy.

Bronchitis, though frequently conjoined, is not necessarily connected with general pulmonary inflammation; for, as far as the general structure and circulation of the lungs may be conceived to admit of such a distinction, they may exist separately and independent of each other. Engorgement or inflammation of the general pulmonary tissue may accompany bronchitis, but these can never by themselves form the peculiar symptoms of bronchial inflammation. We may in vain look even in the most aggravated forms of pneumonic inflammation for any thing approaching the pathognomonic signs of bronchitis. Indeed, I question whether inflammation of the parenchymatous structure of the lungs ever leads, as Cullen and others have supposed, to that fatal infarction of the bronchial tubes observed in severe acute bronchitis.

I would not be understood to deny, that an excited or inflammatory condition of the lungs may have its share in the production of the disease, but that such a state considered as a precursor is not essential; for we can have no great difficulty in believing that the same chemical or mechanical stimuli which can excite inflammation of the trachea, may be equal to effect the same in the minuter branches, without any great cooperation of the general vascular system of the lungs. The most severe cases of acute bronchitis I have seen occurred in Chatham in the winter of 1818. Three or four of them happened in soldiers recently returned from a long residence in India; and little doubt remains on my mind that the inflammation of the mucous membrane was directly excited by contact with a keen cold air, to which it had long been unaccustomed.

I have never seen an unequivocal example of bronchitis succeeding pleuritic or pulmonary inflammation. Where I have found them conjoined, and this has been not unfrequent, I was able to detect the presence of the former from the commencement of the attack, and have therefore considered them as of cutaneous origin. I do not, however, wish this observation to militate against the possible extension of inflammation from one part of the lung to another; but I advance it, supported as it is by other evidence, as a fair objection against the too common belief, that peripneumony and bronchitis are one and the same disease. Cullen evidently supposed bronchitis a species of peripneumonia, modified in its appearance by some unhealthy or enfeebled condition of elderly persons, whom he considered as almost exclusively the subjects of it. This error obviously arose from the greater fatality of bronchitis in this class of subjects, not from its unfrequency in others.

So far as the pulmonary organs are concerned, I think there is no fact better established than that there may be great vascularity without inflammation. I have seen several fatal cases of pulmonary disease, in which, though the bronchia had all the appearance of having been affected with inflammation, yet there was both in the symptoms during life, and in the general appearances after death, an absence of the most essential signs of bronchitis. This, it is not improbable, may in some cases depend on the presence of some more considerable disease in another part of the lungs, or pleuræ, reserving for itself the principal force of the circulation, and thus abstracting from the amount of disease which would otherwise show itself in the bronchia. But there are cases occurring under different circumstances, in which the bronchial lining, though affected with a high degree of vascular redness, does not only fail to show the usual accompaniments of such a state, but is in this respect, in many instances, absolutely inferior to others in which the membranous redness assumes a much less decided character. Dr Hastings alludes to cases in which no fluid was found in the bronchia, although the mucous membrane was very much inflamed; and, on the other hand, Bayle and Andral have shown that a puriform matter is frequently found in the bronchia, where the mucous lining is scarcely discoloured, nay, sometimes perfectly white.

In nearly all cases of severe pleuritic and parenchymatous inflammation, there is more or less effusion into the bronchial branches, which in young subjects may not be indicated by the breathing till towards a fatal termination, but in the old and less vigorous is noticed at a much earlier period. This, when accumulated to any amount, which happens during the debility preceding death, gives rise to a bronchitic oppression and wheezing of respiration, which are often considered proofs of bronchial inflammation. When this fluid arises from inflammation of the parenchyma, or pleuræ, it consists of a thin frothy mucus, having in general little tenacity, and which is, for the most part, found in the minutest ramifications; but, when it proceeds from inflammation of the air-passages, it is much more copious, thicker, often of a muco-purulent appearance and consistence, and is not unfrequently met with above the insertion of the bronchi into the lungs. In the one case also, it will be found, from the collapsed state of the lungs, that it has interfered little with respiration, and that the redness of the bronchiæ, if there be any, is commonly confined to the smaller branches. In the other, the lungs are found more or less inflated from the quantity and thickness of the effusion having obstructed the passage of air; and the disease of the lining membrane often proceeds above the bifurcation of the trachea.

I shall now proceed to offer a few remarks on the mildest form of the disease, viz. catarrh. Catarrh, when unaccompanied by fever or dyspnœa, appears to arise from inflammation of the lining membrane of the trachea, or at farthest of the bronchi, or their larger branches; for we cannot suppose that inflammation of the minute ramifications would be accompanied by such mild symptoms, or be so often followed by easy and complete recovery, as catarrh generally exhibits. The severer cases of catarrh, or what has been termed mild acute bronchitis, appear to have the same seat, and to affect the same extent of surface, as the severe acute form; and this may be inferred from several circumstances.

1st, The severest cases of pure uncomplicated bronchitis commence with symptoms so exactly resembling those of common catarrh, that they are with difficulty, in the earlier stages, distinguished from each other; and it is only by attention to the increasing severity of the former, and the stationary or receding nature of the other, that we are led to apprehend danger and establish our diagnosis. The subsidence of inflammation in both is followed by increased secretion from the bronchial lining; but this, which, from its moderate quantity in the one, is easily expectorated, and proves a source of health, is in the other, from its superabundance, a cause of aggravation, frequently of death.

2d, It cannot be disputed that the cough and dyspnœa in hooping-cough, small-pox, measles, &c. have their chief origin in bronchial inflammation, and that these disorders, with certain differences to be hereafter noticed, give rise to a very similar train of phenomena as those of catarrh and severe acute bronchitis. They would appear to hold the middle station between the two latter diseases, which may be considered the extremes of the series, which, generally speaking, may be arranged in the following order,—common catarrh, hooping-cough, eruptive bronchitis, severe acute bronchitis.

It is evident that different degrees of inflammation in the same organ may lead to very obvious differences in the symptoms, as well as in the results of disease. There is no organ in which these variations give rise to more manifest distinctions than in the bronchiæ. The leading symptoms and danger of bronchitis arise, as I shall afterwards point out, chiefly from accumulated secretion in the bronchial branches, and not from the amount or seat of inflammation, abstractly considered; for, as I have before shown, the peculiar symptoms of the severer cases do not show themselves in the first days of the complaint, though it may be fairly presumed there is at that period the highest inflammation going forward; and this seems the more certain from the fact, that, from the mildest to the severest form of the disease, depletory measures, which we cannot doubt reduce the amount of the inflammation, invariably increase that of the effect, the effusion which is the more salutary, or more dangerous, as the disease shall have approximated the extreme of mildness or of aggravation.

It is not difficult to conceive, that, under different degrees of inflammation, the obstructing matter may be secreted in more or less quantity, with greater or less rapidity, and of a denser, more tenacious, or thinner consistence, so as to present a greater or less obstacle to the passage of air to and from the lungs, and give rise to the several modifications of bronchitic oppression, from the slightest respiratory interruption to the most complete suffocation. In other words, in proportion to the intensity and deep-seated nature of the inflammation, the effusion will be more copious, and thicker; and as it is probable, that, when the inflammation is most intense, a corresponding diminution of the capacity of the bronchial branches takes place, we can easily imagine the difference of symptom and termination that are likely to arise, between cases in which a copious and dense matter is rapidly effused and impacted in the bronchial branches, and those in which a less abundant, or at least a thinner, and more easily expectorated secretion takes place. In the one case, from the rapid and complete obstruction of the air tubes, inspiration is prevented; and as, while this continues, the debility of the system proportionably augments, the efforts at expectoration are feeble, and of little avail; and death frequently ensues, with a rapidity little expected by those who have not before seen the more exquisite examples of the disease. In the other, on account of a thinner, less tenacious, and probably more scanty secretion, respiration, though oppressed, is enabled to go on; for here the effused matter, being at once more fluid and moveable, the air is enabled to insinuate itself into the minute branches, and to carry with it in its egress a portion of this adventitious secretion. If this fails to take place, it must accumulate and lead to the same fatal obstruction as in the first.

No one who has observed a severe paroxysm of asthma, and the symptoms of fatal bronchitis, but must have been struck with the similarity of the leading features of one to those of the other. The peculiar wheezing of respiration, the short frequent cough, the sense of constriction across the chest, the erect posture, the feeling of approaching death by suffocation, and almost all the other symptoms, are very similar in both diseases, and, excepting the difference of probably a greater degree of spasm in asthma, are to be ascribed to obstructed secretion. This in asthma cannot be expectorated on account of the spasm. When this subsides a free expectoration takes place, and the paroxysm soon terminates. In bronchitis, on account of the inflamed surface, the matter is secreted in much larger quantity, and of a denser nature, and from this, and the debility always accompanying obstructed respiration, remains impacted, and immoveable in the air tubes.

But to return. It may be necessary to show that I have not spoken of these differences in the effect, without being able to prove their dependence on some variation in the cause. With the exception of catarrh, the real extent of the cause of which we have seldom an opportunity of ascertaining, hooping-cough is the simplest form of bronchitis; and if we recur to our dissections in this disease, and compare the morbid alterations with those observed in the more exquisite cases of bronchitis, we shall find that generally they have been much less remarkable. It will be observed, that although the disease may have pervaded the whole extent of the bronchia, yet it is not of that uniform deep red, or livid appearance seen in severer cases; but that commonly it consists of a superficial light red vascularity, often occurring in patches, not always progressively increasing, as in other cases, from the larger to the smaller branches, but exhibiting frequently the same colour in the minute ramifications as in the trachea. I shall not here inquire how far such a state of parts will account for the phenomena of hooping-cough. It will be sufficient for the present to remark, that such morbid appearances have commonly been found; and if they have not been sufficient to explain all symptoms, we have at least, on fair analogical reasoning, been borne out in ascribing to them the prominent and dangerous symptoms of the disease.

The bronchial inflammation of eruptive diseases, generally speaking, pervades the whole extent of the air passages from the upper part of the trachea to the minute ramifications, frequently presenting throughout one uniform and continuous inflammation, more especially as it occurs in erysipelas. In small-pox and measles, we find it here and there beset with pustular and papular specks, congregated or scattered, and to a more or less extent, according to the intensity, or other circumstances connected with the general disease. The general inflammation of the mucous membrane, as compared to that in hooping-cough, is in colour much more vivid, having commonly a deep vermillion and highly injected appearance, such as may be frequently observed in the intestinal mucous membrane during the same diseases. Under all this apparently great inflammation, however, it will be found that its organic traces are very superficial, chiefly confined to the mucous coat, and may, on many occasions, be easily removed by scraping with the edge of a scalpel. It is to be observed, however, that although this be the general state of the bronchia, both in regard to hooping-cough and eruptive diseases, yet examples are met with in which the inflammation presents the highest degree of intensity.

The morbid alteration in severe acute bronchitis is of a much more aggravated character. It commonly commences about the middle of the trachea, or from that to its bifurcation, by a slight blush of inflammation, which gradually increases downwards, till, in the smaller branches, it assumes a dark livid and highly inflamed appearance. This is not as in the other superficial, but affects equally the mucous and fibrous coats of the bronchia, not unfrequently the whole investing substance, for a considerable way into the cellular tissue of the lungs. Indeed, so extensive is the disease in some cases, that the whole substance of the lung seems to be affected with one continuous inflammation. This, however, is by no means common, the inflammation being generally confined to the tissues first mentioned. On dividing these, the cut edges do not, as in the two preceding, show a paler texture than the mucous covering, but a continuation of the same dark appearance, as found in the bronchial lining. The inflammation of the bronchia in eruptive diseases is superficial and symptomatic, and takes on nearly the same appearance as the accompanying mucous inflammation of the intestines; that in the other is deep seated and idiopathic, and holds nearly the same relation to the former as enteritis or inflammation of the cellular coat of the intestines bears to the intestinal mucous inflammation of eruptive diseases. The bronchial inflammation of hooping-cough in its nature, variation, and in some of its sequelæ, may be compared to the muco-enteric inflammation of dysentery and fever.

Under these variations in the cause, it may easily be conceived there will be considerable differences in the amount and nature of the effect; and, as I have before said, that the peculiar and dangerous symptoms of the disease chiefly depend on the quantity and quality of the effused matter, we may readily comprehend, aided by the very probable circumstance, that, with the aggravation of both cause and effect, there is a proportionate degree of spasm, how much diversity there may be in the amount and danger of the disease in different cases.

It is very probable that a degree of bronchial inflammation, which in the young and robust proves mild and easily cured, not unfrequently leads in the old and debilitated to severe and even fatal symptoms. It is from this, I think, the common opinion is derived, that the old, and those of a phlegmatic temperament, are more liable to peripneumonia notha, and not from the unfrequency of the disease in younger and more vigorous subjects. The disease, as far as my own experience leads, attacks the old and young indiscriminately. The difference in the degree of symptoms and fatality is, in a great measure, to be ascribed to the influence which the constitution of different patients exercises over the effusion. It may here be repeated that the symptoms at the commencement, which are those of common catarrh, are in both nearly equal. It is in the advanced stage, when the inflammatory tension of the vessels has subsided, and the process of effusion begins, that we discover those remarkable differences in the result which have led us to imagine something more formidable in the extent of inflammation in the one case than in the other, but which is to be taken with limitation; for, as I shall afterwards point out, it is extremely probable that what in youth constituted no severer disease than common catarrh, may in old age occasion fatal bronchitis.

The following recapitulation may not be superfluous:

1st, Bronchitis, though often combined, is not necessarily connected with general pulmonary inflammation. One may give rise to the other, but under ordinary circumstances they exist separately, and, as far as may be conceived possible, independent of each other. This is more especially true in regard to bronchitis.

2d, Bronchial inflammation may be idiopathic, depending on exterior causes, either directly applied to the mucous lining, or indirectly through the general pulmonary organs; or symptomatic, arising from some specific disease of the general system, of which bronchitis forms only a part or symptom, and is not, as in the other, subject to its own laws, but, like the general accompanying inflammation of mucous surfaces, to those of the disease of which it is a part. This holds true whilst the specific disease is going forward. The cessation of this last does not always imply a subsidence of its effects, which often continue for a considerable time afterwards, and are then to be considered as admitting of the same pathological and practical deductions as the idiopathic.

3d, Bronchial inflammation varies little with regard to the extent of surface occupied by the disease, but considerably in different cases with respect to the nature and amount of inflammation, that is, whether it shall have been idiopathic or symptomatic, superficial or deep-seated.

4th, The severity and danger of bronchitis is not always proportioned to the amount of inflammation, but to the peculiar circumstances, local, constitutional, or remedial, which may have regulated its resolution in effusion.

(To be continued.)

ART. IX.—*Case in which the Bones of a Fœtus were expelled piecemeal.* By WALTER RANKEN, Surgeon, Airdrie.

ON the 6th July I was requested to attend Mrs L. ætat. 35, wife of J. L. weaver. This woman stated she was in the seventh month of pregnancy, the mother of eight children, and had been very easy in all her previous labours; the eighth child was born in the seventh month, and lived a few days. On the day mentioned she had been in Glasgow; was quite well in the morning, but was taken ill in the passage-boat on her way home. Although the labour pains were now severe, I found, on a careful examination, that the os uteri was not in the least dilated. At 11 P. M. I prescribed an anoydne, and intimated, that, if the pains returned, I might be called.

Next day I learned that my friend, Mr T. surgeon, who had attended this woman in her preceding accouchment, had been sent for, and I did not deem attendance on my part any longer necessary. From this period Mr T. attended till Thursday, 24th August, when he desired me to visit her along with him. I learned that the pains had continued on the 7th July, and on the 8th she was seized with a violent pain in the right side, and that Mr T. had bled her freely in the arm, which gave great relief. On the 9th the pains went off, but the hemorrhage continued, and sometimes to a great extent, which obliged her to be confined to bed. She never felt the motion of the child after the 6th July, the day she was in Glasgow.

Our patient appeared now (24th Aug.) very much emaciated; the abdomen felt hard externally, and was much reduced in size from the time I paid my first visit. The os uteri did hardly admit the finger, but, by pressing it up as far as I could, I was enabled to feel a hard substance, which I supposed to be bone. We were now informed, for the first time, that, two weeks ago, two small bones had come away, which had been thrown out, but by description they must have been metacarpal, or metatarsal bones. In consultation with Mr T. I suggested that the os uteri should be dilated mechanically, and delivery accomplished. As it was late, we prescribed an anodyne, and agreed to delay farther proceedings till next morning.

Friday, 25th August.—Mr T. informed me this morning, that our patient had slept well, and he wished farther delay, as he believed the labour-pains would return. In the evening Mr T. acquainted me, that our patient had complained a good deal during the day, and that the os uteri was rather more dilated. We visited her, and attempted to introduce two fingers, with a view to dilatation, but did not succeed; found the os uteri very thick, and towards the sacrum within the uterus two soft spongy bodies. With my polypus forceps I gently dilated the os uteri about an inch and a half in diameter, when Mr T. brought away some rotten flesh; I then got hold of the two bones which I had felt at the first, which proved to be the tibia and fibula, and afterwards, by considerable exertions, brought away some ribs and a clavicle. These proceedings occupied nearly two hours, and, our patient becoming faint, we delayed till the morning.

Saturday 26th, 10 A. M.—We found our patient free of complaint, and she had enjoyed some refreshing sleep during the night; the pains had not returned, and the parts were in the same state as yesterday. Mr T. now brought away some small bones. After two or three attempts, I laid hold of the trunk of the fœtus, and brought it away with some difficulty; I then got hold of the occipital bone, the two parietal bones, and the os frontis in two parts. We could not discover the placenta, which must have been included in the mass of putrefaction. During the whole time of these operations, the smell, from the putrid state of the fœtus, was intolerable; and, though our patient complained very little, she now felt exhausted. She however expressed herself as very happy when we informed her that the whole fœtus was extracted. To remove a slight shivering fit, and allay the irritation of the system, we gave our patient a drachm of tincture of valerian, and the same quantity of laudanum.—Saturday, 10 P. M. Our patient improves in strength, and has no alarming symptoms.

September 1st.—Appetite greatly improved; pulse 100; the discharge from the uterus is trifling, and is not offensive; complains of weakness, and does not sleep much at night for a troublesome cough, but is free from abdominal irritation; can lie on any side. To remove the distressing symptoms, the usual remedies were administered; and we are happy to say, that, by the 1st October, our patient was walking about in the enjoyment of perfect health.

The following table exhibits the number of cases that have come under my care during the course of seven years, with the comparative number of male and female children, natural children, twins, forceps cases, still-births, and breech presentations.

	Sons.	Daughters.	Total.	Illegitimates.	Cases of Twins.	Forceps.	Dead born.	Breech present.
Aug. 1818	12	14	26	2	2	2	2	
Jan. 1819	67	44	111	5	3	5	5	3
—— 1820	56	41	97	7	3	7	5	1
—— 1821	57	74	131	3		3	3	2
—— 1822	55	69	124	6	1	3	3	2
—— 1823	73	68	141	12	2	4	2	
—— 1824	88	55	143	7	1	4		1
—— 1825	68	65	133		3	9		2
	476	430	906	42	15	37	20	11

The above includes two cases in which the face presented, and one shoulder presentation. I never met with a case requiring the use of the crotchet; and it may excite some surprise, when I state that I have no such instrument in my possession.

The above table gives forty-six sons more than daughters. Every twenty-second child is illegitimate. In every sixty cases there is a case of twins. In every twenty-five cases there is one forceps case. In forty-five cases one is dead born. In eighty-two cases one is a breech presentation. In 890 cases accurately marked in my note-book, seventy-nine were born in January, seventy-five in February, seventy in March, seventy-four in April, ninety in May, seventy-five in June, eighty-five in July, eighty-five in August, sixty-two in September, sixty-four in October, sixty-one in November, seventy in December. Of these born in the morning from 12 midnight to 12 noon.

Number of cases, A. M.

	40,	57,	40,	57,	35,	37,	45,	38,	36,	36,	29,	20.
Hour.	1	2	3	4	5	6	7	8	9	10	11	12.

Number of cases, P. M

27, 40, 30, 27, 27, 34, 36, 38, 43, 47, 44, 27.

This statement gives 470 cases, A. M. and 420 P. M.

Airdrie, 19*th Dec.* 1826.

ART. X.—*Observations on the inexpediency of sending Consumptive Patients to Madeira.* By A. H. RENTON, M.D.

THE object of the following observations is to save from much unnecessary suffering and inconvenience a hapless class of beings, for whose relief but little can be done by medicine, and whose fate the most callous of us must necessarily deplore. I allude to those invalids sent hither from England in the last stage of pulmonary consumption.

It would be foreign to the intention of this communication, to make any remarks on the nature of the symptoms which indicate diseased lungs, or to say a word about the cure of a disease which, in its advanced stages at least, most medical men believe to be, in the present state of our knowledge, irremediable. No unusual share of acuteness is necessary to detect confirmed consumption, and still less is requisite in forming an opinion as to its result. My only object is to call the attention of my professional brethren to the inutility, I had almost said the cruelty, of the practice of annually banishing from home and all its comforts, a host of devoted victims, whose very hours are numbered, and who are thus, by the decision of their medical attendant, deprived of the only consolation which can be afforded them in their descent to the grave, the society and soothing attention of affectionate relatives. The increasing frequency of this practice shows that the judicious remarks of others on this subject have been neglected, and that the following observations may not be unnecessary.

That this measure is frequently adopted merely to gratify the wishes of the unfortunate sufferer, or those of his friends who are, naturally enough, anxious to leave nothing untried in their search for means of relief, is probably true. But it is evident, both from his own account, and from the written statement which he brings with him, and which, but too frequently, holds out the most flattering hopes of recovery to breathless, I may say *lungless* objects, worn down to the bone by profuse colliquative discharges, that, generally speaking, the patient himself has little to say in the arrangement, and that it is principally in obedience to medical advice that he undertakes a voyage, productive of nothing but mischief and disappointment. What object a practitioner can have in view in sending invalids abroad, in such hopeless circumstances, it is difficult to conceive. One would suppose that the dissection of a single body dead of phthisis, which had run its ordinary course, would be sufficient to convince the firmest believer in the certainty of the efficacy of our art, that neither change of climate, nor any known means, can avail in the repair of such extensive disorganization, as must evidently have existed for a long time previous to the death of the subject. As to any relief from suffering which is obtained by dragging out the last few months of existence in a warmer climate, the inconvenience which is invariably experienced during the first (and of his the whole) part of a residence abroad, would more than counterbalance it, were it much more considerable than it actually is; for he must know little of his own kind who is not aware of the difference between the comfort which is to be derived from the watchful attendance of attached friends, and that to be expected from the usual, however kindly offered or well intended, civilities of a stranger. So uniform is the result of this practice, that the annual importation of invalids from England is thought a fit subject for ridicule. "La vai mais hum Inglez a Laranjeira;" there goes another Englishman to the Orange tree, (the protestant *burying* ground,) has become the joke among the boatmen on landing these unfortunates on the island.

The following table, limited as it is, will give a tolerably correct idea of what is to be expected from a residence here in lung cases. It is taken from those of which I happen to have memoranda, and which form a part of those which have been sent here during the course of the last eight years. It does not include the invalids who have come out this winter, many of whom will never see their native shores again.

In the cases marked "confirmed phthisis," there were copious purulent expectoration, diarrhœa, &c. and almost all of them terminated fatally here. I examined the bodies of fifteen of them after death in the presence of some of my professional friends; and in every instance the lungs were found almost completely disorganized. The extent to which the process of disorganization may proceed before death, is better exemplified here than in Britain, as the patient's progress, *à son heure suprême*, is less liable to be hastened by accidental inflammatory attacks. In some of them the pulmonary symptoms were stated to be merely secondary, and the liver was denounced as the offender in chief; but in only *one* instance (that of a gentleman from Scotland, in whom that organ was found enormously enlarged, and of which there was sufficient evidence before death) was there found the slightest deviation from healthy structure in any of the other cavities. From this I exclude intestinal ulcerations, which are so generally met with whenever the disease has had an opportunity of running its victim completely down.

Some of those marked "incipient phthisis" were probably not fully entitled to an appellation so ominous. Their general character was, young people who were said to have " overgrown themselves," and who had been subject in England to inflammatory attacks, having cough, &c. Others had suffered from neglected or mis-treated inflammation, and in many there was a strong family predisposition to pulmonary disease. Most of them, I have little doubt, would now have been in their graves but for the precautionary measure which was adopted.

The " other diseases" were asthma, scrofulous glandular enlargements, and rheumatism, all of which were benefited by a residence here.

Cases of Confirmed Phthisis,		47
Of these there died here within six months after their arrival,	32	
went home in summer and returned and died,	6	
left the island, but of whose death we have heard,	6	
and not since heard of (probably dead,)	3	
Cases of Incipient Phthisis,		35
Of those there left the island, much improved in health, and of whom we have had good accounts,	26	
also improved, but not since heard of,	5	
and have since died,	4	
Other diseases		15
		97

From this it appears, that there are in England two sorts of cases in which transportation is recommended; those which are curable, and principally those which are not. Regarding the latter order, I shall merely observe that, in cases of the common tubercular phthisis, in which suppuration has commenced, a prolongation of existence, (and that under severe restrictions) is all that a residence here can be expected to afford. When it has proceeded to any considerable extent, I should consider it the duty of a medical attendant not only not to advise the adoption of such a measure, but most earnestly to dissuade from it those who, from hearsay evidence of the recovery of others in circumstances similar to their own, may feel disposed to fly to it as a last resource.

That great and lasting benefit is to be derived from even a temporary residence in this climate, which is probably inferior to no other, in cases where pulmonary disease is merely threatened, or where strong family predisposition to it exists, many living examples sufficiently prove. But, even under such comparatively favourable circumstances, it ought to be strongly impressed on the mind of the invalid, that half measures are worse than useless; and that no advantage is to be derived from climate, however fine, unless it be steadily seconded by the utmost caution and prudence on his part.

Madeira, 18*th Nov*. 1826.

ART. XI.—*On the Use of Vinous Stimulants in circumstances which might seem to forbid their employment.* By WILLIAM LAW, Esq. Fellow of the Royal College of Surgeons.

THE day in which doctrines of indirect debility had numerous advocates is pretty much gone by; but the narration of such a case as the following may prove useful in practice, whatever be the opinion we may form of its rationale.

A robust young woman, of a sanguine complexion, under the age of 30, was seized rather suddenly with severe pain of the knee, not arising from any external injury that could be exactly ascertained, at least if there was a preceding blow or strain, it had scarcely attracted attention. There was an ecchymosed part over the knee-pan, somewhat more prominent than the rest; but the whole joint anteriorly, and at the sides, was swollen, and exceedingly painful, with much redness.

In this state, leeches, warm and cold applications, a bandage with and without an accompanying lotion, blisters, an opiate, laxatives, mercurial and others as are usual on such occasions, were all in turn had recourse to, but without any decided relief. The appetite of this patient, never great when in health, became less and less as the disease continued; so that as to regimen also antiphlogistic measures had a fair trial.

These symptoms had continued now about three weeks. At first, she sat up, having the limb supported on a stool; but afterwards, as the complaint seemed untractable, I desired her to remain in bed. Her very full habit was not perceptibly diminished by her complaints, or the treatment; but the extremities seemed rather more shrunk or collapsed than should have arisen from mere confinement to a state of rest; and she complained of coldness in them. This being the case, and having been completely disappointed in the use of antiphlogistic means, I ventured to prescribe two large glasses of wine during the day. This stimulus, varied with an equivalent of ardent spirit mixed with water, was continued for about ten days; and from the period of its first employment, I had the pleasure to find an abatement of the symptoms, which, with the exception of slight tenderness in damp weather, have, up to this time, now four months since the attack, never returned.

Internal stimulants have of late been used by medical practitioners in erysipelatous inflammations, whether with the view of producing a revulsion of blood from the situation where it had centered, or what, I know not; but it has frequently struck me, in considering the extreme want of appetite in these cases, and the immense quantity of blood which must circulate in the large vessels of the digestive system in the common state of the parts, that articles of diet which could restore its flow in them, even at the risk of slightly increasing local impetus, might be beneficial. And besides, that which blunts the sensations to irritability in a part, will be useful in some kinds of inflammation, for while it is thus soothed at the time, constitutional reaction from pain is prevented.

In the case which I have related, though a part of a limb was inflamed, the general circulation of the extremities themselves seemed to be languid, and I wished to see this more equally diffused. But though speculation has its uses, yet, as in the imperfect state of our knowledge of the animal economy, it frequently leads to apparent contradictions, calling for reconciliation; as it is besides often nugatory, and to many will appear so, I shall, in the few following lines, confine myself to a mere statement of facts, in addition to the above-mentioned result of practice.

In a case where there was no particular nausea at stomach, but where extreme paleness of countenance indicated unequal distribution of the blood, I found a local determination to the rectum and sanguineous discharge from it, of several months' duration, yield to similar measures. This patient's bowels were of themselves sufficiently open, and the use of aperient medicines did not form a part of the treatment.

In an instance of rheumatism, wine seemed to be of service the first day of its employment, but heated and disagreed on the next. In another of the same disease it was of benefit, when the Dover's powder, guaiac, and such medicines, had failed to procure relief.

Finally, in such a form of complaint as the older pathologists might have denominated *error loci*, or in muscular pain, I have had recourse to the above means with evident advantage. The continuance and freedom of their employment must of course, in every instance, depend on the individual's general habits in this respect, sex, and other circumstances.

January,
38, *York Place.*

PART II.

CRITICAL ANALYSIS.

Art. I.—*Dublin Hospital Reports.* Vol. IV. Dublin, 1827.

We have much pleasure in announcing the publication of the fourth volume of a work, deservedly held in high estimation, both in this country and on the continent. Having been favoured with an early copy of this volume, we are enabled to present to our readers a short sketch of its contents prepared before actual publication; a circumstance not entirely indifferent in a volume containing much original and interesting matter, the early communication of which may be desirable. The present volume, inferior in no respect to any of the former, is in one respect much superior. The plates (fifteen in number,) are more numerous, and better executed, and do much credit to the publishers.

The first paper, is a *Report of the Amputation of Portions of the lower Jaw, performed at Stevins's Hospital, by James William Cusack.*

Mr Cusack relates six successful cases, one in which large portions of the lower jaw were removed by the knife. The operation was undertaken in the disease, popularly denominated fungous tumour of the bone; osteosarcoma carcinomatodes of German authors.—"In such instances," he observes, "the disease is more purely local, being primarily confined to the osseous texture, and incapable of contaminating the adjacent soft parts, or of affecting the system through the medium of absorption. Effectually to extirpate the diseased structure, and secure the patient against the return of the complaint, amputation of a part, or the entire of the jaw, can alone be relied on; and this operation, although so formidable in appearance, and often rendered complex and tedious by the situation or extent of the disease, may, in general, be performed with success and safety; even the excision of the bone from the articulation being attended with less difficulty or danger than could have been at first anticipated. Amputation of the lower jaw has been but seldom performed in this country, although the operation is not uncommon upon the continent. In one instance only does the removal of the bone from the articulation appear to have been attempted, and of this case no particulars, so far as I can recollect, have been recorded in any of our journals. Before we can duly appreciate the advantages to be derived from amputation of the inferior maxilla, we must contrast the hideous deformity, and cruel sufferings consequent upon the presence of tumours in this situation, with the comfort and safety secured to the patient by the performance of this operation. The loss of even large portions of the lower jaw is in general attended with but little inconvenience, and scarcely any perceptible deformity, while the extirpation of the original seat of the disease is the best security against any return of the complaint."

"Case I.—Honora Doyle, ætat. 46, a country woman, of a healthy constitution, was admitted into the hospital, June 21st, 1824. She gave the following account of the commencement and progress of her complaint.—In May 1818, she found it necessary to have the second molar tooth of the left side of the inferior maxillary bone extracted: about six weeks afterwards she received a severe blow on her jaw, exactly over the situation which the tooth had occupied: this injury was not immediately followed by any unpleasant consequences, and was almost forgotten, when, in the succeeding September, her attention was excited by the appearance of a small tumour about the size of a hazel nut, which protruded from the vacant alveolar space. The swelling, when first perceived, was firm, elastic to the touch, and almost insensible to pressure. According to her statement, it was unattended, in its incipient state, with any painful sensation; its progress was at first so slow as to be almost imperceptible, but in some weeks the swelling had become visible externally. She then applied for assistance to an apothecary, who pushed a lancet into its centre: this wound produced a profuse hemorrhage, which was suppressed with difficulty. She subsequently made application to other practitioners, by some of whom incisions were made, which were followed by similar results: she also stated, that, after each incision, the tumour evinced a greater disposition to enlarge. At the expiration of the first year, the tumour had engaged a large portion of the bone, advancing towards the chin, and expanding inwards so as to impede the motions of the tongue, and prevent mastication. Still she was free from pain, and experienced no inconvenience, except what depended on the size and situation of the swelling.

"About this time she again applied to a neighbouring surgeon, who made a very deep incision into the centre of the tumour: this operation was followed by an immediate and rapid extension of the disease. Discouraged by these repeated failures, no further application was made for relief, until the rapidly increasing size of the swelling, which now impeded respiration and deglutition, combined with the distress occasioned by profuse ptyalism and occasional hemorrhages, induced her to come to town, with the determination of submitting to the performance of any operation that might be proposed.

"When she presented herself at the hospital, I found almost the entire of the left side of the lower jaw involved in the disease,—the tumour projected outwards, and caused much deformity, the jaws being separated by a portion which protruded between the teeth, and prevented the closure of the lips. On inspecting the cavity of the mouth, the tumour appeared to consist of three branches, involving the bone in their centre; the first, or outer, formed the prominence which was visible externally; the second, ascending between the upper jaw and cheek, and distorting the countenance, reached as high as the margin of the orbit; the third, filling up the sublingual cavity, elevated the tongue, and pushed it to the opposite side: this portion likewise extended so far backwards as to press on the anterior arch of the palate. The teeth were observed on the surface of the tumour, sunk into its substance, and perfectly moveable. The entire portion of the jaw, included between its angle on the left side, and the last incisor tooth on the right, was more or less affected.

" The situation and extent of the disease will explain the nature of her sufferings. She complained of difficulty of respiration and deglutition, articulated indistinctly, and was unable to take nourishment, except in a liquid state. A continued discharge of saliva, mixed with bloody sanies, streamed over that portion of the tumour which protruded from her lips. Her general health, however, might be considered good;—she had not yet suffered much constitutional disturbance, and preserved a tolerable appetite. Under these circumstances, the rapid increase of the disease threatening soon to put a period to her existence, it was decided, in consultation, to attempt the removal of the diseased portion of bone, as the only measure that afforded a prospect of saving the patient's life.

" On Friday, July 7th, I proceeded to the operation, in presence of the surgeons of the hospital, Messrs Crampton, Peile, Colles, aud Wilmot.—The patient was seated on a chair, her head supported, and inclined to the left side: this position being deemed preferable to the recumbent posture, as best calculated to favour the escape of the blood, and prevent its accumulation in the fauces.

" Standing before the patient, I commenced by making an incision from the commissure of the lips, on the right side, which, passing obliquely downwards and dividing the parts completely through, terminated about half an inch below the base of the jaw; the bone being thus laid bare, was divided by a small hand-saw through the alveolar process of the right canine tooth, which had been previously extracted. The next incision extended from the lobe of the ear, in the direction of the ramus, to the angle of the jaw; and both were connected by a third, carried parallel to the base. Dissecting up the flap, thus formed, I divided the masseter muscle, which was expanded over the anterior surface of the tumour, and denuded the bone midway between its angle and condyle. A needle, to which the chain saw had been connected, was passed behind the ramus, the point being kept close to the bone; the saw moved with so much ease and freedom, that the patient did not appear sensible of the division of the nerve. I then pressed the tumour downwards, to put the soft parts (attached to the bone internally) on the stretch; and concluded the operation by cutting across the muscles connected with the base of the jaw, exactly at their point of insertion.

"The hemorrhage was inconsiderable; the dental, and some branches of the facial artery, were secured by ligatures; dossils of lint were placed in the cavity to give support to the cheek; and the divided parts brought into apposition, and retained by points of interrupted suture. A light dressing was applied, and the entire supported by a bandage and compress.

"The operation was tedious, yet the patient appeared so little exhausted by its duration, or the loss of blood, that she was able immediately after to walk to her bed. She swallowed drink in small quantities, which was conveyed to the base of the tongue by means of a gum elastic tube, attached to the spout of a teapot.

"In the evening (six hours after the operation) her face was flushed, her cheek hot, and slightly swollen; but she suffered no constitutional disturbance, and appeared disposed to sleep.

"Saturday.—She had slept during the preceding night, but was greatly annoyed by a profuse ptyalism, and complained of a feeling of tension in the cheek; in other respects she seemed in a comfortable state. Having removed the bandage and compress, I directed the application of the saturnine lotion, and the administration of a cathartic enema.

"From this date, her recovery proceeded rapidly; when suppuration was established, the dossils of lint were withdrawn through the mouth, and the wound acquired, each successive day, a more favourable appearance. Complete union of the divided soft parts followed, and on the twelfth day she was able to walk about the ward. Her articulation became gradually more distinct; she took every kind of nourishment which did not require mastication; the ptyalism, however, still remained. The natural form of the mouth had been so much altered, first by the protrusion of the tumour, and subsequently by the loss of support from the chin, that she was obliged to afford artificial assistance, by means of a bandage, to the lower lip. This inconvenience diminished daily during her stay in the hospital, and scarcely any deformity was ultimately observable. She sometimes complained of the mobility of the remaining portion of the jaw, which was drawn by the action of the muscles within the line of the upper teeth, so as to require the assistance of her finger to replace it.

"In six weeks after her arrival in town, she returned to the country in good health; and, according to the last account which I heard from her, still continues free from any disposition to a recurrence of the disease." Pp. 4–10.

The second and third cases being similar to the first, we shall pass at once to the interesting account of amputation of the lower jaw at the articulation.

"*Amputation at the Articulation.*—The success which had attended our former operations, suggested the possibility of extirpating the jaw at the articulation.

"The practicability of this measure was fully discussed, and the anatomical relations of the joint carefully considered.—The danger of hemorrhage appeared to present the only serious objection against the undertaking;—the proximity of the ramus of the jaw to the termination of the external carotid artery, and the near relation of the internal maxillary to the articulation, seeming to render it impossible to disengage the joint without wounding one of these vessels.

"A little careful examination, however, will show that neither of these arteries is in immediate contact with the jaw. The internal maxillary, which would appear more exposed to danger, inclines backwards in its passage behind the neck of the condyle, being distant about a quarter of an inch from the bone;—the natural structure of the joint allows this distance between the artery and articulation to be still farther increased; so that by sawing the bone through at any point, and separating the attachment of the temporal muscle, the capsular ligament may be opened anteriorly, the condyle dislocated, and the jaw disengaged, without endangering any vessel of consequence.

"From the detail of the following cases it will appear that exarticulation is not only practicable, but not necessarily attended by any danger of formidable hemorrhage, from the proximity of the carotid or its branches.—The preliminary step, therefore, of securing this artery in amputation of the jaw, as practised by Dr Mott, must be regarded as rendering the operation unnecessarily complex.

"Through the kindness of my friend Dr Graves, I have lately been made acquainted with the fact of Graafe having amputated the jaw at the articulation.—No particulars of this case have appeared in our journals; but the precaution of tying the external carotid, which he was induced to adopt before commencing the operation, appears to me, with all due deference to such authority, just as unnecessary as Dr Mott's practice of securing the main trunk of the vessel." Pp. 13, 14.

Mr Cusack details three successful cases of amputation at the articulation, each of which possesses so much interest, that it is difficult to select one as being more worthy of attention than the others. That of Mary Passmore, (p. 18,) may be taken as affording a good specimen of the progress of the disease, the formidable nature and difficulties of the operation, and the persevering coolness and skill of the operator.

"Case V.—Mary Passmore, ætat. 24, of a pale and delicate appearance, was admitted into the hospital May 27, 1825. She stated that she had enjoyed general good health until she attained her nineteenth year; about which period she was seized with a very severe pain in the last molar tooth of the right side of the lower jaw; her sufferings were sufficient to induce her to submit to its removal; the extraction was effected with much difficulty, and was succeeded by so much inflammation, that she was unable to open her mouth for several days. About three weeks afterwards she felt a small tumour in the situation lately occupied by the tooth; it was firm, and resistant to the touch, but not insensible, some uneasiness being complained of after pressure. The progress of the disease was at first slow, the tumour having scarcely attained the size of a walnut at the expiration of three months. In the course of the first year, the swelling acquired just sufficient bulk to become visible externally; its advancement was marked by frequent paroxysms of acute pain, which were occasionally so severe as to deprive the patient of rest. During the second year the swelling continued gradually to extend along the bone towards the chin; the molar teeth, having successively become loose and painful, were removed. In the course of this year the bone snapped across, about the situation of the canine tooth, in the attempt to chew a hard crust; and the pain attendant upon this accident was so excessive as to cause the patient to faint. From her statement it would appear that the fractured extremities became united at the expiration of five weeks; but the union was accompanied with such an extension of the disease as completely to involve the part which had sustained the injury. It is unnecessary to detail minutely the various additions so her sufferings, occasioned by the gradual extension of the disease. During the year previous to her admission, she was so much incommoded by the size and weight of the swelling, that she was compelled to confine herself to her chair. Deglutition, respiration, and articulation, were all more or less impeded; and her health obviously impaired. The uterine secretion was suspended; she lost her appetite; became pale and emaciated, and suffered from occasional attacks of hæmatemesis.

"Previous to admission into the hospital, her general health became so much deranged that she was obliged to confine herself almost entirely to bed. On examination, I found that the tumour had engaged the entire extent of the jaw, from the articulation on the right side to the dens cuspidatus on the left; the principal bulk of the swelling extended itself laterally, inclining outwards and downwards, and distending the soft parts so much that they appeared on the point of giving way: inwards, it occupied the entire sublingual space, passing the median line, and touching the ramus on the opposite side, by which portion the tongue was elevated, and its tip brought into contact with the *velum palati*. The disease had extended to the articulation, and the coronoid process was so much expanded as completely to prevent any motion of the affected side; while the mouth, which was kept permanently open, gave passage to a continued stream of saliva. This tumour evidently differed in structure from those I had previously met with; it was more dense, the surface being smooth, and yielding to the impression of the finger; but its parietes possessed so much elasticity as immediately to resume the same uniformity of aspect, upon withdrawing the pressure. The incisor teeth still remained, and, in consequence of their looseness, occasioned much distress.—The general health, as I have before observed, had suffered considerably; but little nourishment could be taken, and that with much difficulty.

"This was evidently a most formidable case; the constitution of the patient was broken down; the tumour extensive; the processes enlarged so as to prevent motion; and the integuments so much distended as to leave ground for apprehension that they would not be able to preserve their vitality after an operation. On the other hand, the solidity of the tumour seemed to afford an assurance of greater facility in separating it from its surrounding connexions.—I was supported by the favourable opinions of my professional brethren, and emboldened by previous success.

"On Friday, June 3d, she submitted to the operation; the preliminary arrangements for which were made in the manner before described. The mental portion of the bone was divided by the chain saw, at the situation of the first molar tooth of the left side. This step of the operation was rendered tedious by the restlessness of the patient; she depressed her head towards the sternum, and offered much resistance to the use of the saw. The transverse incision through the cheek was inclined upwards, in the direction already noticed. A third was made over the articulation, and continued downwards, to unite with the second. The division of the soft parts had been hitherto attended with a profuse hemorrhage, much exceeding what had been contemplated. The vessels however contracted speedily on being divided, yet the total quantity of blood lost was considerable. After the separation of the cheek, and the complete exposure of the anterior surface of the tumour, the bone was found so immoveably fixed from the expansion of the processes, that I could not venture farther in the dissection without danger of wounding the vessels beneath the base of the jaw. In this dilemma, I divided the tumour about an inch below the articulation, and quickly separated the portion included between the two sections: ample opportunity was thus afforded for clearly ascertaining the nature of the difficulties I had still to encounter. So completely had the coronoid process filled up the infra-zygomatic space, that the detachment of the insertion of the temporal muscle proved both difficult and tedious: after it had been separated, I proceeded to the removal of the condyle. Having fairly exposed the anterior surface of the articulation, I perforated the capsular ligament, and finally completed a tedious and disgusting operation, during which the patient had fainted several times, and rejected the contents of her stomach. The integuments having been replaced, and the wound dressed in the usual manner, she was removed to her ward and placed in bed; when she exhibited but feeble signs of animation, and remained in the same state of exhaustion for several hours. Her countenance was pale, skin cold, and pulse scarcely perceptible. Reaction took place but slowly;—in twenty-four hours after the operation the lip and cheek were still cold; yet from this period little trouble was experienced; a mild inflammatory action succeeded, and in six weeks she was restored to her friends, fat and healthy.

"It was remarkable that in this case the cheek still retained a natural prominence, a newly formed structure appearing to occupy the place of the bone, and scarcely any perceptible deformity resulting from the loss of so large a portion of the lower jaw." Pp. 18–22.

The next case, that of James Mahony, p. 23, which want of space prevents us from inserting, was attended by the following remarkable occurrence:

"The instant the separation of the under lip was completed, a large mass of the tumour, which had been supported and restrained by this barrier, burst forth, presenting a congeries of fungous or granular masses, which separated into distinct portions. *The sight was so appalling and unexpected, that many present were alarmed for the result. It was, however, too late to recede:* I directly applied the chain saw through the alveolar process, from which the tooth had been removed. I next circumscribed the chasm in the cheek, by two incisions, which were extended outwards, and united over the external side of the tumour," &c. &c.

We have heard from an eye-witness of this operation, that no case could be imagined better calculated to put the intrepidity and judgment of the operator to the severest proof. The fact is, that not only were many present alarmed for the result, but most of those who assisted Mr Cusack, shrunk with terror, accustomed as they were to the performance of capital operations, from the unexpected and alarming sight, and advised him to desist, and close up the wound as fast as possible. It was, however, as Mr Cusack remarks, *too late to recede*, and he proceeded with a coolness and decision which reflect the greatest credit on his anatomical knowledge, his operative skill, and his scientific fortitude and firmness.

The fourth and last case of amputation at the articulation proved fatal from the unexpected occurrence of erysipelas on the fifth day. Death took place on the 9th day, in consequence of dyspnœa, produced, as was proved on dissection, by the inflammation having spread into the submucous cellular tissue about the larynx, where it caused œdema from the effusion of a sero-purulent matter.

This *angina œdematosa*, or œdematous croup, Mr Cusack remarks, is not an unfrequent termination of the erysipelas which sometimes follows even slight operations about the angle of the jaw. Its occurrence in this case cannot, therefore, he urges, form an objection against amputation of the jaw, or an argument against the success of the operation.

After the cases we have given, it is quite unnecessary for us to express our opinion concerning Mr Cusack's paper. Although Gräfe has the honour of being the first to perform amputation of the lower jaw at its articulation, yet this does not detract from Mr Cusack's merits; for he was ignorant of what Gräfe had done, and was at all events the first British surgeon who attempted this formidable operation. His success, too, has been greater than that of Graafe, and places him in the first rank of operative surgeons.

The second paper consists of "clinical observations" by Dr Robert James Graves, and contains several cases of considerable interest. The first is a case of abscess of the liver, which, though similar to other examples of that disease, will nevertheless be exceedingly valuable to the practitioner in showing the application of a method of treatment, which is certainly both new and rational. Most practitioners are aware of the difficulties attending the opening of a large and deep-seated abscess of the liver; and these objections are generally deemed of such weight as to deter any one from deviating from the established rule. It is sufficient to say, that unless it is perfectly certain that adhesion has taken place between the surface of the abscess and that part of the abdominal peritoneum through which the incision is to pass, any attempt at opening a hepatic abscess must be speedily fatal.

In the present case the uncertainty of the precise situation of the abscess induced the surgeons of the hospital to disapprove of any attempt to open it. Dr Graves, however, reasoning from the fact, that an incision over a deep-seated abscess, though it fails to reach the matter at first, sometimes after a few days actually forms an outlet, was desirous to try the effect of this method, and to avail himself upon principle of a resource which accident seemed occasionally to provide. With this view he proposed that an incision about four inches long should be made exactly over the centre of the tumour in the right hypochondre; that it should be carried through a considerable depth of muscles to within about one or two lines, if possible, of the peritoneum; and that it should be plugged at bottom, and kept open, in the hope that the abscess might tend in that direction, and at length burst through the artificial opening.

A very deep incision was therefore made through the abdominal muscles in the direction of the tumour, but without rendering the situation of the matter more distinct. In two days after, however, when the patient was sneezing, a large quantity of purulent matter burst through the wound; and though it turned out that the incision was not exactly over the abscess, the matter escaping not from the bottom but from one side, yet it had been made in such a way as to procure a free exit, without the chance of escaping into the peritoneal cavity.

"The communication between the wound and the abscess was not directly inwards, but somewhat laterally. If then we had attempted to open the abscess *directly*, we would have failed, and the consequences of such an attempt might have been fatal. Purulent matter, at first in large and afterwards in diminished quantity, flowed through the wound for several weeks, and the man perfectly *recovered*. The mode which was so successfully adopted in this case, is, I believe novel, and may prove serviceable in similar cases, many of which have hitherto been considered beyond the reach of art. Its safety is at least a strong recommendation. I have little doubt that its judicious employment may be the means of saving many lives, particularly in the East Indies, where suppuration is so frequent a consequence of hepatitis."

The tendency which deep-seated matter manifests of finding its way towards the incision, is ascribed by Dr Graves partly to the removal of pressure, partly to the inflammation which succeeds the incision being propagated from it to the abscess. If the fact is established on satisfactory grounds, it is of little moment to what it is ascribed. We cannot quit the subject without saying, that the proposal of Dr Graves is at once bold and rational, and well merits, under proper limitations, the attention of the practitioner.

The observations on rheumatism of the temporal muscles are important, chiefly as they remind the practitioner of the distinction between rheumatic and tetanic rigidity of these muscles. It is almost needless to say, that this mistake, though common among the vulgar, is not likely to be committed by the physician, and is readily relieved by the usual remedies. In reference to its proceeding from local injury, as noticed by Dr Graves, it may not be unseasonable to say, that we have seen it take place in consequence of a stab through the masseter muscle inflicted by a pen-knife.

The case of *glossitis* affecting one half of the tongue affords a happy illustration of the influence of the cellular tissue in limiting and extending the progress of a morbid process. It was observed by Bordeu, and the observation was afterwards verified and illustrated by Portal and Bichat, that the cellular tissue along the median line of the animal body is so densely and firmly interwoven, that it presents in many instances an insurmountable barrier to the inflammatory action already existing in one part of the tissue. "From this adhesion," says Bichat, "results a sort of detachment of the two great halves of the subcutaneous cellular tissue; a detachment which I have occasionally rendered very conspicuous in my experiments on emphysema. Air impelled with moderate force under the integuments of one side of the body, spread successively, and stopped in several subjects on the median line, so that while one side was natural, the other was affected with emphysematous swelling, and a considerable effort was requisite to overcome the resistance and render the emphysema general." (Tome i. p. 14.) The case shortly given by Dr Graves is a good illustration of the manner in which the inflammatory action may be thus limited in the tongue. Each half of this organ is completely separated from the other by a pretty firm wall of cellular membrane, passing longitudinally through it; and when the inflammation affects one side, it may by this means be completely prevented from extending to the other. In the present instance, while the left half of the tongue was tender, painful, and at length enormously swelled, the right half remained perfectly natural, and presented a very striking contrast to the inflamed division. The appropriate remedy is local bleeding. Two or three applications of six leeches to the inflamed half were followed by a speedy abatement of pain and swelling; and speech and deglutition, which, during the attack, were performed with great difficulty, were quickly restored. Two years after, however, the left half of the organ still continued larger than the right.

In speaking of the painters' colic, Dr Graves recommends the application of tobacco stupes to the belly till the peculiar effects of the drug are manifested in the system. This form of administration he prefers to that by injection, as equally efficacious, less rapid in action, and capable of being left off more easily before any alarming symptoms appear. Their employment is to be followed up by the usual carthartic medicines, especially pills containing croton oil.

Dr Graves then notices a case in which, some months after an attack of dysentery, the patient, besides natural stools, continued to discharge eight or ten times daily, two or three table-spoonfuls of muco-gelatinous matter, varying in colour and consistence, but generally resembling thick milk, or puriform fluid, and occasionally a transparent tremulous jelly. This fluid Dr Graves regarded as a secretion from the irritated or sub-inflamed mucous membrane of the rectum, (*blennorrhoea*, or chronic inflammation of the mucous surface,) and the same as that denominated *fluxus coeliacus* by nosological authors. After various remedies had been employed without success, the complaint finally disappeared under the use of strychnine in doses of one-twelfth of a grain, administered for the space of three weeks; a practice for which the author professes himself indebted to Dr Rummel.

The phenomena of this case suggest several observations on the pathological causes of whitish discharges from the bowels. We have already seen that Dr Graves looks on the ordinary whitish stools, by which nosologists distinguish the cœliac flux, not as chyle, as was imagined by Sauvages, (*coeliaca chylosa*,) Cullen, (*diarrhœa coeliaca*,) and others, but as a modified mucus, secreted by the morbid membrane; and this view will, in general, be admitted to be correct. It may be justly doubted, however, whether the same view can be extended to every form of whitish discharge; and above all, whether there is sufficient reason to identify, with this morbid mucus, another form of unhealthy secretion, similar certainly in original source, but very different, we conceive, in character. We allude to those clay-coloured or earthy-like discharges, which look much like particles of lime suspended in dirty water. Stools of this description have been cursorily noticed by several observers; but the first accurate description of them was given by Baillie, who stated it as his opinion, that they seemed, as to colour, to depend on a copious secretion of calcareous matter from the intestines, but admitted, at the same time, that "their calcareous character had not been put to any chemical test." Dr Good in his nosological arrangement, with his usual inattention to pathological and accurate distinction, and in total neglect of the philosophical doubt of Baillie, laid hold of the most questionable part of the description of this eminent physician, as the basis of one of his species of diarrhœa; and, as if it was an undoubted thing that the human intestines actually secreted plaster of Paris, did not hesitate to request the attention of his readers to the existence of a *gypseous* diarrhœa.

It is unnecessary to say, that the evidence in favour of this species is entirely negative; in other words, that it is supported by no evidence whatever, until the calcareous nature of white discharges is absolutely demonstrated by chemical experiment. It is, therefore, with great justice that Dr Graves calls in question the reality of this as a peculiar intestinal discharge, or as characteristic of a specific disease. He has often witnessed stools of this description; but he ascribed their whitish earthy appearance, not to the presence of lime, but to the absence of bile, and to a secretion of white viscid mucus from the intestines. In proof of the soundness of this view, he appeals to the stools of persons dying under Asiatic cholera, in whom milk-like stools during life were found to depend on a morbid secretion from the small intestines.

Without entirely calling in question the soundness of this idea, it is not unseasonable at present to remind both Dr Good, and the author of the present paper, that the earthy or calcareous stools, described by Baillie, are almost invariably the remote effects of a long and serious pre-existing disease. They occurred, in almost every instance, in persons whose bowels had been much injured by the dysentery of tropical countries, either in long-continued, or in repeated attacks. The effects of this disease on the mucous membrane of the bowels, and on its secretions, are pretty well known; and when the influence of long previous inflammation, abrasion, ulceration, and of the occasional process of accidental cicatrization, is remembered in preventing assimilation of the food, in changing healthy secretions, and in producing new ones; if it does not show how the intestinal discharges should be whitish and earthy-looking, without being actually earthy, it must, at least demonstrate the impropriety of the nosological station assigned to this disease by Dr Good.

Of the observations on dark-coloured stools, and the varieties of *Melaena*, we have not space to speak more at large, than simply to recommend them to perusal; and to say, that they may be advantageously compared with those of Portal on the same subject, and with the cases recorded by that venerable and intelligent physician. These cases, and the conclusions to be deduced from them, will show, that Portal is the first physician in modern times, who, next to Hoffmann, gave correct views of the pathology of the black disease. *Mémoires de la Nature et Traitement, &c.* Tome ii. p. 108.

In some remarks on the scaly Tetter, *(Psoriasis)* Dr Graves shows, that this disease, in opposition to what was stated by Bateman, and afterwards by Dr Duffin, may be propagated by contagion.

The concluding, and by far the longest and most elaborate part of these clinical observations, is occupied in considering the subject of preternatural enlargement of the extremities. In addition to the two well-known forms, termed *phlegmasia dolens*, and *Barbadoes leg*, Dr Graves has observed other two, which he regards as sufficiently different in pathological character to admit of being regarded as distinct species.

In the first, the limb becomes gradually and uniformly enlarged, without the slightest pain or redness of the skin, or any marks of inflammation, either in this or in the subjacent textures, until it attains an enormous size, and becomes quite unshapely. The knee and ankle joints, nothwithstanding, retain their flexibility; the muscles perform their motions perfectly; and in the case described by Dr Graves the patient could walk and run till an extensive excoriation, which took place on the back of the leg, rendered him unable to earn his bread by daily labour. The skin of the leg also burst into cracks or fissures, from which oozed great quantities of fluid, which hardened into crusts and scales. Notwithstanding this distended state of the skin, it is a remarkable proof of the integrity of the anterior textures of the limb, that it could support the weight of the body steadily and without pain. As this enlargement is independent of marks of inflammation, Dr Graves regards it as an example of simple morbid growth. If this view be correct, it is perhaps to be regarded as an instance of hypertrophy of the intermuscular cellular membrane. Facts, however, are still wanting on this head.

The second species of enlargement noticed by the author is somewhat different. It may occur either in the superior or in the inferior extremities, but is said to be most frequent in the former. The first appearance of swelling is preceded in general by febrile symptoms more or less severe, and usually attended by gastric derangement. In a day or two the back of the hand and wrist become somewhat swelled, and considerably hotter than natural. The skin becomes red, in irregular confluent and slightly raised patches, the outline of which may be circumscribed or diffused, but the colour of which disappears on pressure, and which are always more or less hot and itching. After a period varying from three to eight days, these symptoms subside, the patient recovers his usual health, and even the residual œdema soon vanishes. In the course of four or five weeks, however, the complaint recurs, runs the same course, and leaves always greater and more lasting œdema, till this becomes permanent. In the course of a year or more of this course of things, the hand is enlarged to two or three times its natural size, the enlargement being greatest on the back; the skin becomes thickened, wrinkled, and split into chops and fissures; and, as the disease proceeds, the wrist and fore-arm may attain such a size, that the hand cannot be closed, nor the wrist moved, and the limb becomes useless and burdensome.

When the leg is attacked the chief difference consists in the rapid progress of the disease, the enormous size which the limb attains, and the general diffusion of the affection over the entire member.

From the examination of several prepared specimens of this disease, preserved in the Museum of the Royal College of Surgeons, Dr Graves gives the following account of the morbid changes induced on the several textures of the limb.

"The cuticle in all was in many parts thickened, scaly and rugous, and here and there had the appearance of a hard warty surface. The corium was thickened in some parts enormously, even to the extent of three quarters of an inch; the papillæ were enlarged, vascular, and elongated, and the subcutaneous cellular membrane was much increased in depth, and condensed in structure, containing a large quantity of granular fat like matter.

"The muscles were slender, but otherwise natural, so that the increased size of the limb evidently arose from the alterations which had taken place in the skin and subcutaneous cellular tissue, in consequence of the frequent depositions and increase of substance in these parts after each accession of the inflammation."

Little doubt can be entertained, if this description be accurate, and apply generally to all the cases, that this disease consists in a peculiar inflammatory process, affecting the subcutaneous and intermuscular cellular tissue, returning periodically, and producing by its effects a successive enlargement of the limb. The morbid state of the integuments is evidently secondary, and results chiefly from the great distension to which it is subjected. Admitting this conclusion to be just, we are not quite prepared to think with Dr Graves, that this disease is specifically different from that named *Barbadoes leg*. The disease is confessedly rare in this country, and, therefore, few opportunities of studying it attentively occur. But, from two cases of enlargement of the leg which have fallen under our observation, and from the best accounts given of the Barbadoes leg as it appears in the West Indies, we think it perfectly legitimate to infer, that, whatever be the slight shades of difference, the two diseases originate in the same process, and are pathologically of the same nature. Dr Graves has taken some pains to reconcile the description given by Hillary with what he has himself observed in this country, and what other authors have left on record. We would take the liberty of suggesting, that the swelling of the inguinal glands, which Hillary represents to have been the *cause* of the enlargement, was, in truth, *an effect* of the morbid action going on in the cellular membrane. Of the pathological error committed by Dr Good, it is unnecessary to speak in this place.

The treatment of this disease has hitherto been involved in the same obscurity in which its pathology remained; and it has almost invariably been regarded as incurable. This idea is perfectly correct, so long as the practitioner looks only to the effect of the disease, and allows his attention to be withdrawn from the morbid process to the unshapely mass which it has produced. Dr Graves justly makes it a condition in attempting a cure, that the case must be of no long standing, when much benefit may be expected from antiphlogistic measures by purgatives during the accession, and leeches, cold lotions, &c. to the inflamed parts. Even this plan might be safely carried to a greater extent, by means of general blood-letting, and by longitudinal incisions made into the limb. The remedies which are recommended during the intermissions are, rest of the affected extremity; support by moderately tight bandages; bark, and, if this fails, the arsenical solution, from which Dr Graves has seen considerable benefit derived. He advises, however, that the moment the symptoms of accession appear, these remedies must be abandoned, and the antiphlogistic plan be put in prompt and energetic operation. Above all, perseverance and diligence in the use of means are recommended.

The third paper is one of much value and interest to the physician. It consists of a *Selection of cases* from the medical wards of the Meath Hospital, and county of Dublin Infirmary, intended to demonstrate the utility of stethoscopic examination in the diagnosis of thoracic diseases, and is the joint production of Dr Graves and Dr Stokes, the physicians of the Institution. The cases are only four in number; but they are happily chosen to answer the purpose of the authors. A short sketch of their principal features may not be altogether unseasonable.

The first is an example of a case not uncommon in practice, but too often overlooked or misunderstood,—that of inflammation of the lungs giving rise to symptoms of dropsy of the chest, and, eventually, general dropsical infiltration. The patient, a man of 33, had been admitted into hospital for dysenteric symptoms of a month's standing, which were first relieved by calomel and opium, and then disappeared under the use of small doses of turpentine. In a few days, however, the lower extremities began to swell; and though this declined under the use of meadow-saffron, the orthopnœa which he suffered indicated an affection of the chest. To determine the nature of this the stethoscope was employed. As the man lay on the left side, as the crepitating rattle was heard above the left breast, and as below this the respiratory murmur was inaudible, it was concluded that the lower part of the left lung was inflamed. Bleeding was followed by great relief; disappearance of the rattle and return of the murmur, though still weak.

Exposure to cold was followed by a return of the disease, not only in the former point of the left lung, as was again indicated by stethoscopic examination, but in the lower and back part of the right. These symptoms were again relieved by the usual remedies, but again recurred, and were now conjoined with an unusually forcible impulse of the heart, a diffuse pulsative area, and an unusually clear sound of the right ventricle, with a dull prolonged sound of the left, but without alteration in the rhythm. These circumstances indicated active aneurism of the right ventricle, without disease of the valves, which was actually found to be the case upon examination of the body. That the indications were also accurate in regard to the lungs, appeared from the state of these organs. The upper lobe of the right lung was inflamed in the first degree, the lower lobes hepatized and reddened, while the lower lobe of the left lung, at the point corresponding to the breast, was very solid, and of a dark grey colour.

This case is valuable in showing, first, the influence of long-continued disease of the lungs in producing aneurism of the right ventricle; secondly, the influence of tubercular thickening of the aorta, in producing hypertrophy of the left ventricle; and, thirdly, the tendency of disease of the lungs to cause dropsical effusion into the pleura, and over the cellular tissue at large.

The second and third cases are examples of genuine pulmonary consumption from tubercular excavations. The former of the two is remarkable in showing the accuracy with which the whole process of tubercular softening and excavation, and the accompanying effect of induration of the contiguous portions of lung, may be traced from its commencement to the final termination. The upper and middle lobes of the right lung were largely excavated; the rest studded with tubercles; the lower lobes freer, but gorged with a frothy blood-coloured serum. The left lung contained an excavation large enough to hold two oranges, and the rest of it was completely solid. In the third case, in like manner, tubercular excavations and solidification of the contiguous lung were indicated in the upper part of both lungs during life, and found after death. But the case is not less interesting in showing the inflamed and ulcerated state of the colon, which causes the unmanageable diarrhœa during the latter stage of phthisical diseases. The mucous membrane of the colon was covered by circular ulcers with raised edges, most frequent at the *caput coecum*, which was greatly thickened, and decreasing in number as they proceeded down the intestine.

The fourth and last case is more uncommon, but not less valuable, in presenting an example of that disease, unhappily, as we think, denominated *emphysema of the lungs.* The subject, a man of 40, had been subject to asthmatic cough since boyhood; and the limbs becoming anasarcous, with difficult breathing and lividity of the countenance, he applied for relief at the hospital. Besides a small unequal pulse at 110, the sound and impulse of the heart were heard over the whole right side, and strong pulsation was felt in the epigastrium. The chest gave a very hollow resonance, especially in the situation of a prominence or convexity on the right side, extending from the middle of the third to that of the seventh rib. Yet the respiratory murmur was much weakened below the clavicles, and was almost inaudible over the anterior part of the chest. A hissing rattle was heard at intervals, especially during a full inspiration, and behind this was mixed with the sonorous rattle. These circumstances led to the conclusion, that there was no watery effusion, and that the patient was labouring under emphysema of the lung, (dilatation of the air-cells,) bronchial inflammation, and hypertrophy of the heart. In the course of some days, a dull sound below the left scapula, and a strong crepitating rattle, showed that the posterior part of the left lung was or had been inflamed.

Dissection verified this diagnostic decision. In the right, all the air-cells were dilated, and the pleura in many places was raised into vesicles as large as a walnut. The bronchial tubes were filled with muco-purulent fluid, and their lining membrane was of a bright red colour. The left lung was much diminished in size; the upper part covered with large vesicles; the lower pale and flabby, but still presenting dilated air-cells. Several of the bronchial tubes even were distended to an enormous size, one so large as a moderate apple, and all containing a viscid yellow fluid, which was doubtless the product of chronic bronchial inflammation. The surrounding pulmonic tissue was red and solid; and behind it was of a dark grey colour, and as firm as cartilage, showing the existence of previous inflammation of the submucous tissue. The heart also was more than twice its usual size, the right ventricle enlarged and thickened, and the left thickened without enlargement.

We entirely agree with the authors in thinking, that nothing can show more evidently the advantage of stethoscopic examination, than the case of which we have given the foregoing abstract. The man presented all those symptoms, from which nosologists and physicians have long been in the habit of inferring the existence of water in the chest. No sooner, however, was he submitted to proper examination by the instrument, than the remarkable resonance of the chest, with the impaired respiratory murmur, indicated that air was contained in the lungs, but that it was *not* inspired and expired by the alternate motions of respiration, and that no watery fluid was effused. In addition to this, the sonorous rattle showed the presence of bronchial inflammation, while the strong impulse of the heart, and the diffuse pulsative area, clearly denoted hypertrophy of the organ. One oversight only was unavoidable. The dilated bronchial tubes of the left lung being filled, not with air, but with muco-purulent fluid, failed to communicate the pectoriloquous sound, which would have otherwise been heard.

Some observations on the inaccuracy of Dr Maclean, in his treatise on hydrothorax, though well-founded, are superfluous. The truth is, that the work of that author, though passably well for the day in which it was written, lost all sort of credit the moment that the treatise of Corvisart on diseases of the heart appeared. Though it still sustained a sort of vacillating reputation with those lovers of old books and established systems, who abominate innovation, and resolutely adhere to the beaten path amidst six hundred sneers, and a thousand serious arguments, yet it had long ceased to be consulted for any other purpose, than to see the errors committed by the older nosologists. After the appearance of the work of Laennec, and the new and just views developed on this subject, it seems not less nugatory to slay a dead man, than to attempt a serious correction of the erroneous pathology of Dr Maclean. It is doubtless true, that practitioners will still continue to speak of hydrothorax, and attach the same erroneous idea to the term as heretofore; and they may plead in vindication the example of nosologists such as Dr Good. But we trust that no well educated physician, who feels the responsibility of his profession, and is sincerely anxious to qualify himself for the conscientious discharge of its duties, will ever imitate the example of the one, or shelter himself under the authority of the other.

Dr William Stack's paper on *Inflammation of the pleura, lungs, and bronchia,* forms the fourth article of the volume. The author commences by paying a well-deserved tribute to the general accuracy of the signs laid down by M. Laennec as characteristic of these diseases. Indeed, so well have the combined means of auscultation and percussion succeeded in establishing his diagnosis as to the nature and extent of these affections, that he does not hesitate to affirm, that, from a combination of both, a degree of accuracy as to the nature of thoracic disease may be obtained, such as is not to be had with respect to the affections of any other cavity.

Dr Stack, however, like most persons who have commenced the study of mediate auscultation, has encountered considerable difficulties, which he, with perfect candour, attributes in many cases to his own incapacity to decide between sounds nearly allied, such as bronchophony and ægophony. These objections had been long since urged by M. Andral in his 2d vol. of the Clinique Medicale. A more extended acquaintance with the phenomena of the voice and respiration, as modified by disease, have since enabled this accurate pathologist to correct the errors of his earlier investigations; and we make no doubt that a more attentive study of the signs afforded by auscultation will remove many difficulties, which Dr Stack now considers insurmountable.

The most serious difficulties which Dr Stack experienced in his employment of the stethoscope, were in distinguishing between the advanced stages of pneumonia and pleurisy. He even goes so far as to assert, that when these diseases have not been observed from their commencement, it is often *impossible* to decide between them.

As this assertion is in direct contradiction with M. Laennec's statement, and with the results of our own experience, it may be worth while to consider to what causes are to be attributed the difficulties which Dr Stack experienced. These we consider to be twofold,—first, that the sounds of ægophony and bronchophony were not distinguished with sufficient accuracy; and, secondly, that these and other physical signs were made the primary or even the sole objects of consideration, and all the valuable information to be derived from antecedent and accompanying symptoms almost entirely neglected; whereas the author of the treatise on mediate auscultation used invariably to take into consideration every symptom and circumstance which might either directly or indirectly throw light on the nature or extent of the disease under consideration. A no less fertile source of his difficulties, in forming an accurate diagnosis in these obscure affections, we consider to have been the vague manner in which those symptoms which have been noticed are recorded. We think these causes fully sufficient to account for the difficulties of deciding on the nature of the subjoined ideal case, which is proposed by Dr Stack as the type of a numerous class of cases, in which it is impossible to determine whether the disease be acute pneumonia or acute pleuritis, or chronic pneumonia or chronic pleuritis.

"For example, suppose (what not unfrequently occurs) that a patient presents himself complaining of dyspnœa, which has lasted for several days, having been preceded by a pain in some part of the chest. On percussion one side returns a dull sound, but does not appear either dilated or contracted. On examination with the stethoscope, the respiratory murmur is absent all over that side of the chest, with the exception perhaps of those parts where the root of the lungs is situated, and a few inches down the spine. There is no bronchophony excepting in the superior parts, nor is ægophony distinguishable. What diagnosis is to be deduced from this combination of signs? whether is the disease pneumonia or pleuritis? I say it is impossible to determine, even supposing the minor signs to be present, such for example as the communication of the heart's action over the affected side, which some will have to be a sign of the advanced stage of pneumonia, but which may also depend on other causes, such as dilatation with hypertrophia of the heart. The disease may be either acute pneumonia or acute pleuritis, or it may be chronic pneumonia or chronic pleuritis."

Here are *four* diseases all laying equal claims to this case, *two* of which, we conceive, might at once be set aside, if, in the first sentence, describing the duration of the malady, the term of a week or month, or any intermediate but definite period, had been substituted for the indefinite expression of "several days." Surely no reasonable doubt could then exist as to whether the disease were *acute or chronic.*

The other symptoms are detailed so vaguely, and so many essential circumstances are omitted, that we cannot hazard an opinion in favour of either pneumonia or pleurisy *of the rival candidates.* Indeed, we see nothing to prove that the case should not be referred to neither or both.

And here we beg to be understood as not advocating the infallibility of the stethoscope, or asserting that serious difficulties may not occur in establishing our diagnosis, even when all the physical signs have been perfectly discriminated, and all the correlative symptoms accurately investigated. We only wish to express our conviction, that many defects attributed to these means combined, are due to our own negligence or incompetence in applying them.

Dr Stack proposes as a diagnostic sign, inferior to none other, in *severe and acute cases* of pneumonia, pleuritis, and bronchitis, a peculiar colour of the countenance, which he considers characteristic of these diseases. In pleuritis, it is either of a flushed and florid, or of a natural hue. In humid bronchitis, it is of a colour more or less approaching to blue, according to the severity and extent of the inflammation. In pleuritis, the lips are of a florid red. In humid bronchitis they are of a blue colour. The flush of pneumonia is as it were made up by an intermixture of the two shades, but quite distinct from each. These appearances are only to be relied on in the acute form of these diseases. It is also necessary that the attack be severe. Now, it unfortunately happens, that such are the forms of these diseases which least require additional distinctive features. For who that has employed mediate auscultation in the wards of an hospital for a single winter, could possibly confound the acute forms of pneumonia, pleuritis, and bronchitis, especially when severe.

But we have another and more serious objection to these physiognomical signs. These varieties of colour, says Dr Stack, are entirely dependent on the quantity of unarterialized blood in the circulatory system. But the quantity of non-arterialized blood varies directly (in these diseases at least) as the extent of lung rendered unfit for the purpose of respiration; and therefore the varieties of colour vary directly as the extent of lung is unfit for respiration. It is hence quite evident, that the same colour of face will be produced, when the action of one lung, or part of one lung, or of one lung and part of the other is suspended, either from extensive effusion, hepatization, or plugging up of the bronchial tubes. Nay, we even venture to assert, that the blueness of lips,

&c. which he considers characteristic of bronchitis, would be more marked in the two first cases than in the latter; for it has never fallen to our lot to observe the respiratory action completely obstructed by bronchitis, whereas, in the other diseases, it is a common phenomenon in the points affected. To prove this proposition, we need only state the fact, that patients labouring under universal bronchitis not unfrequently struggle through the disease, whereas, were both lungs compressed at all points by an extensive effusion, or universally hepatized, immediate death from suffocation must follow. We may remark *en passant*, that our most esteemed authors have considered lividity of the lips and countenance as characteristic of hydrothorax and pneumonia. The fact is, that the colour of the countenance (we do not speak of the hectic flush,) depends on the extent of the disease; and as bronchitis is in Dublin more frequently an extensive disease than pneumonia, so blue lips are more frequently observed accompanying the former of these affections; and this we consider the sole merit of this sign, namely, that, as extensive bronchitis is a more common disease than extensive pneumonia, so, when blue lips are observed, the odds are in favour of bronchitis.

We do not think it necessary to enter into a formal refutation of Dr Stack's assertion, that when one entire lung is compressed by effusion, all the blood which passes through the left ventricle is as perfectly arterialized, as if both lungs were in a state of perfect integrity. The simple statement of the case, we conceive, refutes the error; for supposing, though we cannot for a moment admit the assertion, that the blood which circulates through a lung compressed by extensive effusion, is perfectly oxygenated, yet, as the quantity of blood which passes through such a lung in any given time is considerably less than should pass in the healthy state of this organ, it necessarily follows, that a less quantity of blood is exposed to the atmospheric influence in a given time, than would be if both lungs were sound, and consequently, that an undue proportion of venous blood must be in circulation, which, when amounting to a sufficient degree, will produce the blue lips as effectually in pleurisy or hydrothorax as in bronchitis.

Dr Stack next proceeds to consider when those diseases, viz. pneumonia, bronchitis, and pleuritis are severally combined, which is most commonly the antecedent, and which the consequent affection. *Pleurisy* he considers more frequently the consequent than antecedent of *bronchitis*. This opinion, which is directly the reverse of that entertained by the French pathologists, he supports by stating, that he has occasionally met with instances of patients labouring under bronchitis, acute or chronic, being suddenly attacked with pleurisy, though no external exciting cause of the latter could be assigned. We pass over the fallacy of the argument *post hoc, ergo propter hoc*, to remark, that if the Doctor will take the trouble of comparing those *occasional* instances of pleurisy, supervening on bronchitis, with the *numerous* cases in which pleurisy was accompanied towards its termination, if not previously, with bronchitic sputa, and consequently with bronchitis, we think he will find no difficulty in subscribing to M. Laennec's opinion, viz. that though the supervention of pleurisy on bronchitis be one of the rarest complications of pulmonary disease, there is not one more common than that of bronchitis supervening on pleurisy. P. 193-4, Vol. i. 2d edition.

The complication of pleurisy with pneumonia is next considered; and here Dr Stack's experience coincides with the observation of M. Laennec, that inflammation is more frequently propagated from the parenchyma to the pleura, than the reverse. This proposition, evident to any one moderately versed in the use of the cylinder, Dr Stack endeavours to prove by a metaphysical argument, which may be thus briefly stated:

Imprimis, "It must be admitted, that of two tissues possessing different degrees of vitality, and hence, different degrees of susceptibility of inflammation, that which possesses the highest degree of both, is the tissue most likely to be *secondarily* engaged by the spreading of inflammation primarily affecting the other. But the pleura possesses a higher degree of vitality, and is, consequently, more liable to inflammation than the parenchyma; *ergo* the pleura is the tissue most likely to be secondarily affected."

Though we cannot admit the premises, we readily acknowledge the truth of the conclusion. We shall consider them separately. *First*, if two tissues possess different degrees of vitality, and of susceptibility of inflammation, we conceive that which possesses the highest degrees of both will, nine times out of ten, be the *primary* seat of inflammation. The *second* proposition we consider as still less tenable, viz. that the pleura possesses a higher degree of vitality than the parenchyma. If we understand aright the signification of this term, as applied to the pulmonary tissue, it comprehends all the minute bronchial subdivisions, generally denominated air-cells, with the innumerable minute branches of the pulmonary artery which ramify on their surface, in order to expose the blood to the action of the atmosphere. The experiments of Varnerius have proved them to be plentifully supplied with nerves also. These parts, connected together by cellular tissue, are generally considered as constituting the parenchyma. Let us compare the structure of the pleura with this, and we shall then better appreciate its claims to a superior degree of vitality. No injections have ever demonstrated in it the existence of blood-vessels. Reisscissen's accurate and minute examinations detected a beautiful net-work of vessels immediately subjacent to it, but failed of tracing a single vessel into it. Neither have anatomists ever detected the presence of nerves in its tissue; their existence has only been inferred from its sensibility in disease. Rudolphi has denied its capability of undergoing inflammation, and many of the most distinguished pathologists of Europe are of his opinion. On what grounds then repose its claims to superior vitality? We confess our entire ignorance.

Dr Stack's other arguments, derived from dissections and the application of the stethoscope, are much more conclusive; as they are only a repetition of some of the arguments adduced by M. Laennec, we shall not repeat them here. One error, however, we must notice, which has crept into Dr Stack's account of his *post mortem* examinations. The morbid appearance termed carnification, he represents (and quotes M. Laennec to confirm his representation) as quite distinct from the result of inflammation, and as produced solely by the compression of the air-cells, caused by effusion into the pleura. We beg leave to refer the reader to the 224th page, 2d volume, of M. Laennec's 2d edition, where he will find it clearly stated, that carnification is a peculiar modification of pneumonia developed under the influence of pleuritic effusion, and compressed by it.

To the question, "whether does inflammation more frequently spread consecutively from the mucous to the parenchymatic, or from the parenchymatic to the mucous structure of the lungs?" it may be decidedly answered, from the parenchymatic to the mucous tissue. In this opinion also, Dr Stack's experience confirms the statement of M. Laennec, page 194, Vol. i. 2d edition.

On the subject of morbid complications, Dr Stack notices one circumstance which he considers very remarkable, and contradictory to what M. Laennec advances in his 2d edition, (vol. i. page 194.) It is this, that "pneumonia less frequently supervenes on bronchitis than pleurisy does." If we might offer an opinion where two such authorities are at issue, we should say that the supervention of either on bronchitis is so exceedingly rare, that they can scarcely be considered in the relation of cause and effect. We shall terminate this article by quoting the passage from M. Laennec's work, which Dr Stack considers so remarkably at variance with the result of his experience. We translate *verbatim* in order to preserve a *French Bull.* "*Nothing is more rare* than that pneumonia should succeed to a catarrh of sufficient intensity to induce us to suppose that the pneumonia was caused by an extension of the inflammation from the bronchiæ. *But it is still more rare* to see pleurisy succeed to catarrh under these circumstances." Its rarity must indeed be extreme.

Dr Stack promises, at a future period, to recur to these subjects, "if the observations contained in this communication shall be judged by his professional brethren worthy of continuation." We trust that our strictures, which, we can assure Dr Stack, are dictated solely by a wish to promote the interest of science, will not prevent him from continuing his pathological investigations.

We should now proceed to consider the subsequent articles in this volume; but as our account of those already noticed has occupied so much space, we shall pause here, and defer the continuation of the subject to a future number.

ART. II.—Pelletan, Cloquet, Sarlandière, Carraro, and Pouillet, *on Acupuncture.*—(*Continued from* p. 200.)

4. REGARDING the mode of operation of acupuncture, it was remarked at the close of the former part of this abstract, that the inquiries hitherto instituted leave the pathologist very much in the dark. In fact, the only step as yet made towards ascertaining the truth is the discovery, that it does not bear any resemblance in its action to any other energetic remedy.

The Japanese, from whom, as formerly noticed, it was derived and introduced into Europe, entertain the notion, that all diseases spring from the presence and accumulation of certain airs in different parts of the body; a very convenient theory in regard to the operation of acupuncture, the needles being supposed to act simply by letting these airs out. When first made known in Europe, it appears to have been considered as an evacuant, if indeed it may be said to have received consideration at all, when it was not applied to practice. More lately, that is, when the French physicians began to employ it in the present century, several persons, and among others M. Dupuytren, viewed it as a simple irritant applied directly to parts deficient in tone; while others, also conceiving it to be an irritant, held nevertheless that it acted by derivation. To these latter doctrines, which are the only ones hitherto mentioned that need detain us for a moment, it is sufficient to object, that acupuncture very rarely or never irritates; that it hardly ever causes more than slight traces of inflammation, even when the needles are left long in the body; that its effect is not proportional to the irritation produced; nay, that it very often operates a cure, when it does not cause any irritation at all. Neither of these theories therefore can stand. They were probably suggested by the fact, that the Chinese and Japanese use acupuncture nearly in the same cases as the moxa.

The next theory we shall notice appeared at first to supply a plausible explanation of the facts. It has been already mentioned, that M. Cloquet,—on accidentally observing, or imagining he observed, a slight numbness and tremor in the muscles of his arm and fingers, when he held a needle which had been thrust into a part affected with neuralgia,—was led to inquire whether electricity passed along the needle; and that both he and Professor Pelletan, as well as M. Pouillet, found an electric current to exist in it, whenever the galvanic circle was completed by attaching a conductor between the needle and the patient's mouth. The inference was hastily, but naturally drawn, that the cause of pain in rheumatism and neuralgia is a morbid accumulation of the electric fluid in the part, and that the needle withdraws the accumulation by furnishing a proper conductor; and Carraro, on the authority of one of his friends, has mentioned a fact, which, if true, would singularly confirm this theory,—namely, that no good effect is procured, if the head of the needle is covered with wax. The last statement, however, is in direct contradiction to the experience of every other observer. But besides, the theory is on other grounds liable to insurmountable objections. For in the first place, the soft solids of the body are good conductors of electricity; consequently electricity cannot accumulate in them: Secondly, the phenomenon of the electric current in the needle takes place equally well when the needle is inserted into the healthy body: And thirdly, the passage of the electric current has been clearly proved by M. Pouillet to be connected with the oxidation of the needle, as it is not observable when the needle is made of an unoxidable metal, although the therapeutic effects are the same.

But although the electric theory cannot stand the test of examination in the shape in which it was thus originally conceived, it must be admitted to be very difficult to account for the effects of acupuncture without having recourse either to the properties of the electric fluid, or to those properties of the nervous fluid, by which it is associated with electricity. Accordingly M. Pelletan has hit upon an explanation, which, while it is doubtless hypothetical enough, has nevertheless the merit of being conformable with facts, and is justified by the late discoveries regarding the analogy between the nervous and electric fluids.

On viewing in conjunction the experimental researches of Dr

Wilson Philip, of MM. Breschet, Vavasseur and Edwards, and of MM. Prévost and Dumas, it is impossible to resist the conclusion, that a striking resemblance prevails between the nervous fluid, and the electric current as produced by galvanism. In particular it appears, that in some vital operations the nervous may be replaced by the electric fluid; that they resemble one another in relation to the power which bodies possess of conducting them; and that the nervous ramifications may be regarded as so many conductors of nervous currents, some of which proceed in the same and others in opposite directions. It is by uniting these currents more directly than the nervous organization admits of, or by diffusing and moderating local currents of preternatural force or quickness, that M. Pelletan conceives the acupuncture needles operate. He insists at all events, that various nervo-electric currents must really pass through the parts into which the needles are inserted, and that the needles, as being good conductors, unite them together. For he considers, that the annular oxidation so universally remarked on the needles can arise from nothing else than the union of so many opposite currents,—that union being established through means of the oxidated portions of the metal.

This theory then, we presume, must for the present satisfy those who will not be content with resting their belief in the remedial virtues of acupuncture on the bare empirical facts, but who insist on being also made acquainted with the mode in which the remedy acts.

Before leaving the present section, it is important to consider what reason may exist for regarding its effects as merely the consequence of mental impressions or emotions. This view of the therapeutic powers of acupuncture has been merely hinted at by one or two only of the numerous writers on the subject; a fact which can hardly depend on any other cause than on the circumstances connected with its operation being such as seemed to pronounce that view manifestly inadequate and untenable.

It is certainly very natural to expect that the operation of acupuncture should be attended with peculiar impressions on the mind. Few, perhaps, will submit to the insertion of the needles for the first time without experiencing more or less the emotion of fear; fewer still will submit without experiencing the emotion of surprise, and there is quite enough of formality and apparent mysticism, particularly in the method practised by M. Cloquet,* to inspire the patient with a portion of that confidence, which forms the cause and *sine quâ non* of success in the case of animal magnetism. Nor should it be forgot, that the diseases, in which it is agreed on all hands that acupuncture has been used with the most frequent and unequivocal success, namely the various neuralgic and spasmodic diseases, are peculiarly liable to be influenced by strong impressions on the mind. And to conclude, it is no small additional argument, that, in the cases in which it has been ultimately unsuccessful, it has very often procured much abatement of the symptoms at first, but has gradually diminished in effect at each successive repetition.

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* We omitted to mention in the former part of this analysis, that M. Cloquet thinks the effect of the needle is increased by connecting it through means of a me-

But however rational and conclusive these statements may appear on a superficial view, the inference which is drawn from them cannot bear, we apprehend, a close examination.

In the first place, the partizans of acupuncture might take up strong ground at once, and represent, that whatever may be the influence of mental impressions on neuralgic and spasmodic diseases, there are many others, such as pleurisy, erysipelas, and contusions, which have been cured by the like means, although they are not subject to the like influence. And certainly, if the cases alluded to were sufficiently numerous and sufficiently trust-worthy, the question under review would receive a speedy and satisfactory answer. But such is the unwillingness of most people to admit the remedial virtues of acupuncture at all, and such, it may be added, is our own hesitation to admit them to the extent which the argument now used implies, that,—without any special reason, without any other reason, in short, than the known uncertainty of medical facts when unconfirmed by repeated experience,—it is exceedingly difficult to grant the premises, on account of the magnitude and singularity of the conclusions.

In the second place, however, a candid and close examination of the therapeutic properties and collateral effects of acupuncture, even in the instances of neuralgia and muscular spasm, (in which the cases that establish its efficacy are too numerous, and derived from too many widely-distant sources to permit any one to deny their validity, without his being obliged to reject human testimony altogether,) will show with almost equal certainty, that mental impressions cannot account satisfactorily for the phenomena.

For as to fear, it is impossible to conceive that, among the many hundred individuals operated on by M. Cloquet at the

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tallic conductor, with a cup of salt water. There is no evident reason why this fanciful addition should be of any use; and the needle certainly acts very often quite as well without it. The apparent effect of the conductors has been probably owing in reality to prolongation of the time.

Hospital of St Louis, there should not have been a very large number insensible to fear from so trifling a cause. A three-inch needle must be allowed to be a startling instrument to many. But it cannot be supposed to possess more power to scare away sciatica, than the terrors of the tooth-key have to banish toothach; which, although a frequent, is by no means an invariable or even general occurrence. Besides, fear operates at once; whereas acupuncture much more frequently acts by degrees, and often slowly. Farther, in those successful cases in which it has been necessary to repeat the operation several times, its effect has continued undiminished, or has even increased with every repetition;—a circumstance which cannot be reconciled with the idea, that the effect is in such cases owing to fear. And lastly, Professor Pelletan accounts the impression of fear of so little consequence to the cure, that to prevent it he recommends the operator to conceal the instrument, as in other operations (*Revue Medicale*, xvii. 88); nay, it has been distinctly stated by M. Berlioz, the first author who has written on the subject in the present century, that when the patient is frightened by the operation, he is rarely the better for it. (*Sur les Maladies Chroniques*, &c. p. 309.)

Most of the foregoing arguments, and particularly that derived from the occasional effects of repetition, form objections of nearly equal force to the notion, that the feeling of surprise is the medium of action.

With regard to the cures having proceeded from the patients being impressed through the medium of the imagination with a mystical confidence in the remedy, it must be conceded that this view is the most probable of all those which refer the mode of action to the mind. But there are two obstacles which appear to throw an insurmountable barrier in the way of its adoption. For on the one hand, the proportion of the cures in neuralgia, amounting in M. Cloquet's hands to five-sixths of the whole, is much greater than could reasonably be expected from a power which possesses so feeble an influence over the operation of ordinary remedies. And on the other hand, the permanency of the cure in a vast proportion of instances of this disease,—a disease exceedingly apt to return under every plan of treatment,—is apparently irreconcilable not only with the effects of confidence in an imaginary remedy, but likewise with the therapeutic effects of all mental impressions whatsoever. Another fact of some consequence, which we have had an opportunity of witnessing personally is, that even when the treatment ultimately fails, and after the patient has entirely lost confidence in its efficacy, it may give temporary relief; and indeed we have also met with an instance in which neuralgic headach was removed in a few minutes, although the patient had hardly any confidence whatever in the cure.

The object of the preceding details on the theoretical part of the subject will be manifest. They may perhaps appear to some misplaced in this brief sketch; but they are essential for completing the evidence regarding the substantial existence of acupuncture as a remedy. We have endeavoured to state them with impartiality. It is necessary to add, that the chief facts are taken from the experience of the most recent investigator, M. Cloquet, who is understood to have commenced his experiments with prejudices by no means favourable to the treatment, and who still, if we are not misinformed, looks upon it with a degree of distrust, such as a philosophic mind cannot easily lose sight of, on comparing its simplicity, efficacy, and celerity, with the complexity, uncertainty, and tediousness of the former methods of cure.

5. It now only remains to conclude the present outline with a short abstract of some examples of the chief diseases in which acupuncture has been employed. The greater part of those which will be noticed are taken from the practice of M. Cloquet, as related by his pupil Dantu. But it should be understood, that similar cases, although seldom so well described, are to be found in almost every author who speaks from personal experience. The first class of cases will comprehend different varieties of neuralgic rheumatism and gout; a second class will include various kinds of spasmodic diseases; a third contusions; a fourth some varieties of local inflammation; a fifth palsy; a sixth anasarca; and some remarks will be annexed on the application of acupuncture to the treatment of asphyxia.

It is chiefly in the *Neuralgic* and *Rheumatic* disorders that the success of the treatment has been in the hands of all frequent and unequivocal. Some cases, indeed, have been little or not at all ameliorated by it; but in the greater number relief or a perfect cure has been obtained by one, two, or three applications of the needles. Of M. Cloquet's cases, which have been very numerous, it appears that the proportion cured, or greatly relieved, has been about five-sixths of the whole; a proportion which will be found very much beyond that obtained by any other method of cure. The following are examples of some of the varieties in which the needles have been used.

Case I. Sciatica.—A stout labourer of middle age had been affected for five years with pains in the right knee. Three weeks before he was acupunctured the pains increased very much, and attacked successively the loins and outside of the whole limb from the hip-joint to the heel. They were constant and acute, prevented the man from working, and even from walking, and rendered him unable to sit longer than five minutes at a time, or to endure the slightest pressure. In presence of a commission of the Academy of Medicine, of Dr Edwards, and other physicians in Paris, a needle was introduced into the loins, and another between the ischium and greater trochanter. In ten minutes there was decided amendment, and the pain of the limb gradually and rapidly disappeared, till at length he could bend and extend the thigh with ease, sit for an hour, and walk without difficulty, although the needles were not removed. By degrees the pain in the loins ceased also, and the needles being withdrawn, he walked home with the perfect use of his limb. Two days afterwards he came back again, complaining that the pain had returned with equal severity in the fore part of the leg; but a needle left for fifteen minutes in the pained part cured him entirely; and he did not again return.—(*Pelletan, Rév. Méd.* xviii. 90.) Cases of sciatica form a very large proportion of those in which acupuncture has been successful.

Case II. Intermitting Headach.—A man 34 years old, had suffered from headach and stupor since his boyhood occasionally, and for eleven years continually. Every four or five days the headach increased so much, that he was unable to work, and he was seized besides with redness and swelling of the eyes, great dimness of sight, and a sensation as of a fluid flowing within the head. During the fit, which lasted from twelve to twenty-four hours, he was unable to eat or sleep; and it was succeeded by excessive tenderness of the hair and contraction of all the members. Leeches, blisters, sedatives, and purgatives were of no avail; and warm bathing, and the application of cold to the head gave him but slight relief. At the commencement of one of these paroxysms a needle was inserted into the forehead. A few minutes afterwards he felt an acute pain around the needle, and a sensation like that of currents flowing towards it, accompanied with diminution of the headach and of the dimness of sight. Next day the headach, dimness, and stupor were gone; he could read even by candle light, and stoop without any suffering, neither of which he could do before. During all the time the needle remained, namely for five days, the symptoms did not return; and two months and a half afterwards he continued in perfect health. (*Dantu*, 57). The treatment has also been very successful in many other cases of neuralgic headach, both intermitting and continued.

Case III. Neuralgia of the Face.—A young man in good health was attacked, on quitting the warm bath, with great coldness of the left cheek, followed next day by swelling, redness, and acute pain. These symptoms having continued to increase in severity for eleven days, he had a spoiled tooth extracted, thinking it might be the cause of his illness; but the pains, nevertheless, became more and more acute, so as wholly to banish sleep during the subsequent night, and to impede the movements of the jaw. A needle was then inserted into the cheek, towards the exit of the facial nerve before the ear, and a conductor was attached to it. In eight minutes the cheek felt numb, the movements of the jaw were easier, and pressure did not cause pain. In fifteen minutes, the pain being entirely and the redness almost gone, the needle was withdrawn. The swelling, which alone remained, also decreased gradually; and three weeks afterwards the cure continued permanent. (*Dantu*, 46.) Carraro has also related a successful case of true *Tic Douloureux*.

Case IV. Toothach.—A man who had been tormented for three days with violent toothach, determined on getting a spoiled tooth extracted. Instead of this, however, his surgeon introduced a small needle through the gum between the second and third grinders. In a few seconds the pain ceased there, but suddenly shifted to the scalp near the frontal suture. A needle introduced there soon removed that pain also. Both were allowed to remain half an hour; and the cure, except that there was a slight pang next day, was permanent. (*Dantu*, 69.)

Case V. Muscular Rheumatism, Lumbago.—A man who had been often attacked with lumbago, and always recovered slowly, applied to Mr Churchill on account of a fresh attack, which prevented him altogether from standing erect, and from walking without a limp. Two needles were inserted into the loins, upon which the pain in a minute or two became less; and soon after the insertion of two others it ceased entirely, and he stood erect without difficulty. Two days afterwards this patient continued well. (*Lond. Med. Rep.* xix. 373.)

Case VI. Rheumatism of the Joints.—A stout middle-aged woman, after suffering two days from acute pain in the soles of the feet, was attacked successively in the course of two months with similar pain in the knee-joints, hip-joints, and wrists. The pain was attended with some redness, much swelling, and great stiffness, and was aggravated by heat or motion. Leeches, cataplasms and low diet slowly removed in succession the disorder in the knees and hip-joints; but that of the wrists obstinately resisted the same treatment. M. Cloquet inserted a needle into the back of each wrist. In ten minutes she could move the fingers more easily; in fifteen minutes the swelling had diminished, and in three quarters of an hour the redness also. During the subsequent night the pains were severe enough to prevent her sleeping; but next morning the left wrist was free from pain even on motion, and the right was much easier. The acupuncturation being repeated for an hour, the swelling was farther lessened, and she slept well the following night. Next day, as some swelling still remained, the operation was repeated then, and again the subsequent day also, because she experienced a slight renewal of the pain from the application of warmth. From that time the cure was complete and permanent. (*Dantu*, 109.) The author of this case has related another of the kind which was unsuccessful; and in a similar case we have ourselves procured only temporary relief. The remedy, indeed, appears to be less useful in articular than in muscular rheumatism, particularly when there is redness or swelling. Carraro, however, succeeded in one instance. (*Annali Universali*, xxxv. 63.)

Case VII. Gout.—A stout corpulent gentleman, very liable to gout, had a fit in August, of which he was very imperfectly cured by leeches; and again another in December, which was treated in the same manner for fifteen days without advantage. The pain and swelling extended over the foot, leg, and knee. Two needles were introduced horizontally on each side of the instep. They were hardly fixed in their places when the patient felt able to put his foot to the ground, and to move it a little; and in four hours he could even walk. They were then withdrawn, slight pain continuing in the knee only. The swelling gradually disappeared, and he soon got quite well; nor had he experienced any other paroxysm at the time of the publication of his case seven months afterwards. (*Dantu*, 77.) Carraro has also noticed a successful case of the kind. (*Annali*, 70.)

Case VIII. Neuralgic Blindness.—Of this singular affection Dantu has related two examples in which a cure was effected by acupuncture. The most remarkable occurred in the person of a young milliner, who, for two years, had suffered from various nervous disorders connected with a hysterical disposition. At length she became affected with a sense of choking, delirium, intense headach, total blindness, and loss of power to close the eyelids. The blindness and headach continued after the other symptoms ceased. Acupuncture was resorted to, when she had been six weeks in this state. Two needles were inserted into the temples, and withdrawn in an hour and a quarter without having been of any benefit. Two others were left for twenty-four hours with as little avail. They were much oxidated and gave her a good deal of pain. Two other needles were introduced the same day. When they were withdrawn in the afternoon, the patient said she felt as if a handful of light had been thrown in her eyes; and from that moment the sight improved progressively and rapidly, while the headach simultaneously abated. Next day the only symptom remaining was a tendency to wink, which also ceased under prolonged acupuncturation; and in a short time her countenance, from being bloated and pale, became quite natural in appearance. Three weeks afterwards her headach began to return, along with lancinating pains in the eyes and some dimness of sight. A needle was therefore inserted into each temple, and left there eight days. From the period of their insertion the symptoms gradually abated and ceased; and the girl continued well seven months afterwards. (*Dantu*, 161.)

The diseases which, next to neuralgia and rheumatism, appear to have been treated by acupuncture with the greatest success, are those of a spasmodic nature. Simple muscular spasm has almost always been removed; and in general the contracted state of the fibres ceases immediately after the insertion of the needles. The other spasmodic diseases in which it has been tried are gastrodynia, lock-jaw, colica pictonum, convulsive cough, hiccup, and epilepsy.

Case IX. Muscular Spasm.—A middle-aged man, in consequence of a violent effort to lift a heavy load, was seized with permanent contraction of the *rectus internus* muscle of the thigh, which continued six weeks without abatement, and was accompanied all the while with severe pain. The muscle could be distinctly felt in a state of contraction. A needle being introduced into its substance, the spasm abated in ten minutes; and in half an hour it disappeared so completely, that the patient could bend his body forward and raise heavy weights without feeling any uneasiness. (*Dantu*, 61.)

Case X. Hysteric Lock-jaw.—A farmer's wife had been affected for two days with general hysteric convulsions, loss of sense, and obstinate trismus. Various external remedies had been employed without avail, as well as such internal medicines as the lock-jaw allowed the physician to administer. At length two deep acupuncturations were made in the masseter muscles; and in three minutes the spasm of the jaw ceased, the faculties rapidly returned, and the woman became able both to speak and to eat. The cure was permanent. The effects of the operation were witnessed by the clergyman of the neighbourhood, and three other gentlemen. (*Carraro*, 65.)

Case XI. Traumatic Lock-jaw.—A man who had sustained several severe bruises on the head and body in consequence of a fall, was seized with complete lock-jaw and such severe spasm of the muscles of the throat as prevented him altogether from swallowing. His surgeon was advised to try the effect of acupuncture, and accordingly a needle was thrust into the right masseter muscle. "That muscle, as well as the sterno-mastoid, platysma-myoides, and all the muscles of the neck and throat of that side, were instantaneously relieved from their spasmodic contraction. Another needle was then introduced into the left masseter, and relief, though not to the same extent, was immediately afforded." He then became able to swallow with ease, opium was given, and he soon got quite well.—(*Fynch in Lond. Med. Rep.* xx. 403.)

Case XII. Convulsive Hiccup and Vomiting.—The following is an abstract of a long and very interesting case of this description related by M. Haime in the *Journal Universel.* A young woman, who enjoyed good health till her fifteenth year, became liable about that time to various nervous disorders, particularly periodical vomiting. In her eighteenth year these complaints got worse, and subsequently general convulsions were superadded. In her twenty-fourth year the spasms became more partial, and affected chiefly the stomach and diaphragm, producing constant hiccup and vomiting. A great variety of antiphlogistic and antispasmodic remedies were tried during a period of six months, but with no permanent and little temporary advantage. With the approbation, and in presence of M. Bretonneau of Tours, acupuncture was then tried; and at the first trial, a needle was inserted fifteen lines into the epigastrium, and left five minutes. A perfect cessation of the symptoms was the result, and the hiccup did not return for three days. The acupuncturation was then repeated with equal success, and again and again with invariable success at irregular intervals, according as the hiccup recurred. Spasmodic motions of the head, convulsive yawning, and convulsions of the arms, which occasionally occurred in the intervals, were successfully combated by the same simple treatment. The final result was, that the spasmodic tendency disappeared; her sleep, appetite, and strength returned; and the patient, although vapourish, acquired a comfortable state of health. (*Journ. Univ.* xxx. 31.)

Case XIII. Colica Pictonum.—A white-lead manufacturer was cured of this disease at the Hotel-Dieu by laxatives and anodynes, but relapsed a few days afterwards. When readmitted, he had constipation, hardness of the belly, severe colic pains, and pains and tremors of the whole extremities. Three needles were inserted two inches into the abdomen, and left five hours. One of them broke on a level with the skin. Next day the belly was much less tense, and the pain had abated. Three other needles were then introduced two inches and a half into the epigastrium, and on each side of the umbilicus. Two of them, five inches long, not having heads, slipped into the cavity of the belly. The patient became in consequence much alarmed; at night he was delirious; and in the course of the following day he died. The belly was not at all painful on pressure; and after death the peritoneum, as well as the intestines, were found not inflamed. The two needles were sticking in the posterior part of the cavity, one in the peritoneum, the other in the mesocolon. The point of the needle which broke the first day had caused a little areola like a flea-bite on the omentum. This is the case alluded to in page 197, as having probably proved fatal from the effect of fear. (*Révue Médicale,* xviii. 29.)

Besides being applied to the foregoing convulsive diseases, the remedy has also been used to check the paroxysm in periodic epilepsy. The case was one of seven years standing, and the fit always began with acute pain in the mamma. A needle was introduced when this pain appeared, and the usual convulsions did not follow. (Dantu, 75.)

The next kind of cases, which appear by the testimony of every writer to be frequently benefited by acupuncture, are those varieties of contusion, in which the blood is extravasated in trifling quantity, or not at all, and in which the chief symptom is acute pain on motion. In a case of this nature, related by M. Berlioz, the patient sustained several bruises on the back by falling on a heap of stones, and was unable to stir in consequence of the excruciating pain which was excited by the least attempt at motion. Eleven acupuncturations in the neck soon enabled him to move his head; and the operation being subsequently extended over the whole back, he was able to quit his bed in two days *(sur les Mal. Chron.* 307.*)* Two similar examples have been described by Dantu, and a fourth is noticed by Carraro. In that variety, too, of neuralgic pain, which often remains long after severe bruises, fractures, and dislocations, the remedy appears to have been particularly useful. Four such cases are described by Dantu; in one of which, a case of contusion of the shoulder, followed by acute pain and inability to move the joint, the acupuncture needles, used three weeks after the accident, had the effect of lessening or removing the pain each time, and of curing the patient altogether in a few days. (p. 151.) It is farther mentioned by Berlioz, that the same method of cure has been applied with immediate and almost invariable success, to remove the pains and stiffness caused by over-exertion, or long-continued working. (308.)

The next class of cases to be mentioned comprehends the Local Inflammations. The authors who first recommended acupuncture do not appear to have contemplated it, like the Japanese, in the light of a universal remedy; but expressly restricted its use to the neuralgic and spasmodic disorders. Their successors, however, have extended it to diseases of a very different description; and among the rest to the local inflammations, which, it is natural to conceive, would not easily be controlled by such means. In the neuralgic symptoms, indeed, which sometimes accompany the chronic form of the *Phlegmasiæ*, some advantage may be expected; and accordingly, M. Cloquet has found it very useful in the neuralgia which occasionally attends chronic inflammation of the eye, and likewise in that which accompanies hip-joint disease and other organic disorders. But that by the same means inflammatory action may be checked, even in its acute form, will not be readily admitted. In the present stage of the inquiry on this part of the subject, we shall be content with mentioning, that Cloquet seems to have cured with it a case of chronic ophthalmia, that a writer in the Révue Médicale says he has cured with it a case of carditis, that Carraro declares he has been successful in a case of pleurisy, and that the same author mentions his having also cured two cases of erysipelas. One of these is related in terms so pointed that we shall notice it shortly, and merely add, that in so severe a disease it is well worth any one's while to try so simple a remedy. It was a case of erysipelas of the head, threatening to end in phrenitis. "It was a striking thing," says Carraro, "to remark, how in a minute and a half after the operation the redness gradually disappeared in white spots, and these gave place in twelve minutes to the natural colour of the skin; while the scalp at the same time shrunk, the swelling abated, the eyelids opened, and the delirium and fever ceased." (80.) It may be alleged that the relater of these facts may have deceived his readers; but it is quite impossible to suppose that he should have deceived himself.

Acupuncture has likewise been used in some cases of palsy. From what is known of its mode of action, namely, that it does not act in any respect as an excitant upon the nervous system, the natural inference must be, that it cannot be of much service in this disease. Accordingly, it has seldom done any good. Carraro, indeed, says in a short notice, that he has cured two cases of hemiplegia; and Bellini, principal surgeon to the Infirmary of Rovigo, has related the particulars of a case of paraplegia, in which considerable benefit was obtained (*Annali Univ.* xxxvi. 88). But Cloquet tried it without any effect in a case of paraplegia; M. Haime likewise failed in two cases of hemiplegia; and Dantu, the recorder of Cloquet's experience, distinctly states, that it has never been of any use in such cases, except for removing the pain which frequently attends the paralysis.

It is probable, however, that, by the addition of electricity or galvanism, acupuncture may be made a valuable method of cure for all varieties of palsy, in which local stimuli are serviceable. With this addition, it constitutes what has been aptly called *electropuncture*, and is, of course, a totally different remedy from simple acupuncture, the needles being in fact nothing else than conductors by which the spark or current is conveyed to the seat of disease. Some very judicious observations have been made on this subject by the Chevalier Sarlandière; on considering which, we certainly think it highly probable that electricity may be applied through the medium of the needles, with an effect which can hardly be expected from the ordinary modes of operating. The Chevalier suggests, that, as the whole soft solids of the body conduct electricity well, it is unlikely that it traverses all the parts which it seems to affect; that the contractions, into which the muscles are thrown by electricity applied to the surface, do not prove that the fluid passed through their fibres, because they may arise simply from the muscles out of the course of the current sympathizing with the parts actually traversed; and that the advantage of electro-puncture consists in its enabling the physician to apply the remedy to the precise part affected with disease. Whatever may be the fate of acupuncture, these suggestions on electro-puncture deserve the attentive consideration of every one who reposes faith in the medicinal virtues of electricity.

There is still another variety of disease in which acupuncture has been used, namely in dropsy, to discharge the fluid from the extremities by external openings. Here its effect bears no relation whatever to its power and mode of action in the diseases hitherto mentioned; and from all which has been done there appears little doubt, that, for the special object of relieving the anasarcous swelling, it is both a sure and a safe remedy. It was first tried for this purpose by Dr Sutton of London, and has since been used by Dr Tweedale of Lynn-Regis, and by Dr Carter, physician to the Kent and Canterbury hospital, (Med. Rep. xix. 205, and xx. 313, 398.) All of these gentlemen have borne their unequivocal testimony to its efficacy and safety in the instances to which they applied it. They all likewise mention their knowledge of the hazard attending ordinary punctures with the lancet; point out the obvious distinction between the irritation caused by such wounds, and the total absence of irritation in the case of acupuncture; and state expressly that they have never observed any redness whatever in an anasarcous limb around the punctures. It is hardly necessary to add, that, in order to be effectual, the punctures, as they are small, must be numerous.

The last topic for consideration is a novel and extraordinary proposal by Carraro, to apply acupuncture to the treatment of asphyxia, by thrusting the needles through the heart. His proposal is founded on the results of experiments on animals. Of these experiments, which were seven in number, and which he says agreed remarkably in their chief results, he has related three in detail. They were made upon kittens, and in the presence of three gentlemen of his acquaintance, one a clergyman, the other two physicians. In the first experiment, a kitten eight days old was held under water till every sign of life had disappeared, and after being taken out and examined by those present, till they were all satisfied of its apparent death, it was again immersed in the water. It was then exposed to the sun, dried with warm cloths, and rubbed over the belly, but without any sign of returning animation. A needle was then thrust through the heart till it rested on the back-bone. This was forty-five minutes after the first immersion. In the course of fifteen seconds the needle began to jerk a little; the movements rapidly became brisker; and they were followed first by motion in the fore-legs, then by respiration and crying, and finally by agitation of the whole body. It remained for two hours in a languishing state; but when kept warm by the natural heat of the mother, it recovered rapidly. A month afterwards it was in good health. Two other kittens were experimented on with analogous results; but one of them died in consequence of being overlaid by the mother. Its body was carefully examined, and a small puncture was found in the middle of the heart, without a single drop of blood having escaped into the pericardium.

These experiments are evidently unsatisfactory, because young kittens, as they are born immature, can support long-continued asphyxia without material injury;* and consequently those operated on by Carraro might have recovered without any treatment. But besides, they have been repeated in the United States by a Dr Coxe, who has written a paper of some interest on asphyxia, in the North American Medical and Surgical Journal; and his results do not coincide with those of Carraro. It may be doubted, however, whether much importance should be attached to Dr Coxe's criticisms. He says some experiments were tried by a friend of his, who found that in two instances the needles introduced eleven minutes after the immersion of the animals did not produce any pulsation; he adds that, in some experiments of his own, although the heart was made to contract pretty vigorously for nearly fifteen minutes, respiration did not ensue, and the contractions consequently ceased; and he sums up the whole by pronouncing the remedy "good for nothing." (ii. 292.) Whether this be the fact or not, it would be presumption in any one to pronounce, who has not tried the experiment; but assuredly the point cannot be decided by Dr Coxe's experiments, since they must present to every physiologist intrinsic evidence of their having been mismanaged.

But farther, may it not be stated as an insurmountable objection to acupuncture of the heart, that, notwithstanding its apparent harmlessness in the hands of Bretonneau, Beclard, Carraro, and others, it must be particularly apt to cause serious mischief in that organ? For if the needle pierces any of the cavities, its point must be liable to lacerate their parietes during their contractions and dilatations. This question must be settled by more detailed experiments. Meanwhile, although it should eventually be proved to a certainty, that animals of all ages may be roused from a state of asphyxia by pricking their hearts, and although a Frenchman has been found who, in his sound senses, consented to submit to the operation, it requires no farther knowledge of the subject to be able to predict, that a long time will elapse before an acupuncture needle will be allowed by physician, patient, or friend, to transfix the heart of any one in this country.

We must now dismiss the subject, and in doing so need add no farther comment, than that it is impossible to deny a great part of the facts which have been mentioned, without refusing credit to human testimony altogether. In the foregoing abstract an attempt has been made to appreciate the truth and value of the works analysed, by the evidence which they themselves afford; and personal experience has been seldom referred to, because although we have had some experience in the matter, it has not been extensive enough to entitle us to try by it the elaborate and multiplied researches of our authors. It is not unreasonable to insist, that those who are inclined to sneer at acupuncture, of whom there are not a few, will submit to be guided by the same principle.

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* Edwards *de l'Influence des Agens Physiques sur la vie*,—analyzed in this Journal, xxii. 350.

ART. III.—1. *Observations on the Preparatory Education of Candidates for the degree of Doctor of Medicine in the Scottish Universities; humbly submitted to the consideration of his Majesty's Commissioners for visiting the Universities and Colleges of Scotland.* 8vo, Edinburgh, 1826. By JOHN THOMSON, M. D.

2. *Additional Hints respecting the Improvement of the System of Medical Instruction followed in the University of Edinburgh; humbly submitted to the consideration of the Patrons and Professors of that Institution.* 8vo, Edinburgh, 1826. By JOHN THOMSON, M. D.

3. *Observations on the System of teaching Clinical Medicine in the University of Edinburgh, with suggestions for its improvement; humbly submitted to the consideration of the Patrons and Professors of that Institution.* 8vo, London, 1827. By JAMES CLARK, M. D.

IT may be thought by some that, as these pamphlets are not printed for sale, they are not legitimate objects of review and criticism. But in this we cannot agree. They are circulated in certain channels to influence public opinion, and more particularly the opinion of public men, whose judgment is to affect the vital interests of our profession. They are printed with the view of effecting very material changes in the constitution of the medical profession, and in the state of medical education. They employ the most powerful of all engines, the press, to propagate certain doctrines; and it is our duty to examine rigorously questions of so much importance as those of which they treat, although our pages are to be purchased in the open market, and theirs are to be obtained only by favour. Indeed we are quite certain that the authors of the pamphlets, whose titles we have prefixed to this article, will rather be pleased with the increased publicity which they will thus acquire.

It is necessary to premise a short historical account of the circumstances connected with their appearance, as many of them have been much misrepresented or misunderstood, and most of our readers are probably altogether ignorant of them.

Some years ago, an opinion began to be agitated among members of the different schools of medicine in Scotland, and that of Dublin, that an extension of the period of professional education, and of professional study, could be required from those who aspire to the highest honours in medicine, without proving too oppressive. After due consideration of the subject, the University of Edinburgh determined upon adopting the measure of reform to as great an extent as those professors, most conversant with the subject, considered to be expedient, probably intending to feel their way for further improvements. The statutes which we reprinted in our 23d vol. page 421, were at last enacted. When the new statutes were published, they received the general approbation of the most esteemed medical Journals of London.

The enactment of new statutes is always an object of great anxiety and importance to those who have already commenced or are advanced in their studies on the faith of the existing statutes; and on the present occasion, in consequence of the length of time occupied in deliberating upon them, and the many erroneous reports circulated regarding their provisions, unusual agitation prevailed among the students. Indeed some of them, after having come to Edinburgh, with the intention of remaining during the session, thought it safer, in the state of suspense in which they were, to alter their plans and go to other schools.

To quiet the minds of the students until the publication of the statutes, it was thought expedient to notify to them, that the statutes under consideration would not be made imperative on such gentlemen as might have commenced their medical studies before they should be published; and when they were published, a declaration was subjoined, that the new rules were to take effect upon such students only as entered on their studies subsequently to their publication.

That new regulations in such a matter should have no retrospective operation was according to the plain dictates of common justice, and conformable with the established usage of universities, and similar bodies.* The magistrates of Edinburgh, however, who are the patrons of the university, thought otherwise; and, without regarding the other important changes introduced into the medical curriculum of the university, insisted that the operation of the new statutes, in regard to a single point, viz. attendance upon the midwifery class, should be made retrospective. Nay, so intent were they at one time upon this object, that they offered to waive the question of their right of interference, which they now think of so great importance as to maintain it by an expensive legal process, if the Senatus would give immediate effect to this part of the curriculum. But, as the Senatus would not consent to break their faith, publicly given, with the students, or to have their statutes, solemnly enacted, dismembered, and a part of them, which was certainly not the most important, preferred to all the other parts, for no very obvious or satisfactory reason, the Honourable Patrons had recourse to the strong measure of a formal visitation of the university, prohibiting the principal and professors from that time from granting a medical degree to any student who had not attended a regular course of midwifery in an university.

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* The University of Aberdeen, for example, which published new statutes in 1825, gave a similar intimation. "As that requisition respecting the degree of A. M.

The Senatus, however, adhered to its former resolution deliberately taken; and the Honourable Patrons then instituted a suit at law for having it declared, that the exclusive right of making laws and regulations for the discipline and course of study to be pursued in the University of Edinburgh, and the qualifications requisite for obtaining degrees, is vested in the magistrates of Edinburgh.

The Senatus Academicus had now no alternative left, but to yield to the demands of the Honourable Patrons, and thus consent to their annihilation as a corporate body, having any rights or privileges whatever; or to maintain, at the expence of the individual professors, the existence of the university against their patrons, litigating with the purse of the community. As the speediest, most satisfactory, and least expensive method of settling the difference which had unfortunately arisen between them, the Senatus solicited the concurrence of the Honourable Patrons in an application for a Royal visitation; both parties deriving from the Crown the rights of which they respectively claim the possession. On the patrons refusing their consent, the Senatus alone presented an humble petition to his Majesty, who was pleased soon after to issue his letter, appointing a Royal Commission for

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might prove injurious to some medical students whose education is now in progress, were it to take effect immediately, it is resolved that it shall not come into full force till the year 1830."

visiting the Universities and Colleges in Scotland, in nearly the same terms as the Royal Commission in 1690. As the Royal Commissioners are expressly authorized to settle all suits and disputes, the Senatus again endeavoured to prevail upon the Honourable Patrons to refer the question to the arbitration of the Commissioners, but again the Honourable Patrons refused their concurrence; and the suit at law proceeds, although the original question is already at an end, the interim possession of the disputed right having been formally conceded by the Honourable Patrons to the Senatus, and the new statutes taking effect long before the decision of a court of justice can be obtained on the general point.

There are now, therefore, two great public acts in progress deeply affecting the interests and welfare of the University of Edinburgh, and especially of its medical school; a legal proceeding to determine existing rights, and a royal visitation with most extensive powers. To the results of both we look forward with confidence. As the royal Commissioners have publicly called for communications on the affairs of the University from all quarters, we are entitled to discuss the subjects which may come under their consideration; and although the legal point of the case between the Honourable Patrons and the Senatus Academicus is altogether out of our province, we shall take the liberty of making some observations on the consequences to which its decision may lead.

The Senatus Academicus, in our opinion, did their duty in defending the students against the retrospective operation of an enactment; and in trying the question whether they themselves had any of the rights or privileges usually considered as belonging to an university, or whether these rights and privileges belonged to the Honourable Patrons, not merely in superiority, and *honoris causa*, but *de facto*, and to be exercised at pleasure unremittingly, so as to paralyze the Senatus Academicus, and put an entire stop to its existence as a deliberative body.

The expression, "Il faut briser l'orgueil de cette Faculté de médecine" uttered in regard to the University of Montpellier, roused the indignation of M. Prunelle. "Qu'est-ce, en effet, que l'orgueil d'une compagnie savante, si ce n'est un sentiment qui rapporte à l'honneur général du corps, les travaux présens, et les travaux passés de chacun de ses membres?"—Des Etudes, p. 19. "La cause de l'école de Montpellier est la cause de toutes les écoles consacrées à un enseignement supérieur; la cause de quelques professeurs en médecine est la cause de tous les savans qui sont employés à l'instruction publique; la cause de sept cent jeunes gens est la cause de la génération entière sur laquelle la France on de ses espérances. La cause des maitres, la cause des disciples, est enfin celle de tous les citoyens." *

Were the Honourable Patrons to succeed in establishing their claims, the downfal of the university may be confidently predicted; for even if they were otherwise fit persons to regulate matters purely academical, the very circumstance of their being a fluctuating body, whose members remain in office but one or two years, and have innumerable other highly important duties to perform, would inevitably lead to inconsistent and fluctuating government, which cannot be sufficiently deprecated in an institution, with whose laws and regulations it is necessary that the parents and guardians of youth be acquainted, when they lay down the plan of their education, even years before they proceed to the university. We are more inclined to blame the Edinburgh school for changing its statutes too frequently, than for being too slow in admitting improvements; and every one who has had any experience in the direction of the studies of young men, will admit how difficult it is to prevent the operation of even the slightest change in academical rules from being misunderstood.

But independently of being a fluctuating body, the Honourable Patrons, from their professional avocations, are little fitted to regulate matters that are in themselves purely academical, and are left in all other universities to the regulation of the Senatus. For the gentlemen who compose the town-council of Edinburgh, as individuals and as fellow-citizens, we entertain the highest respect, and with some of them we are in habits of intimate friendship. But we must be permitted to show how little their pursuits in life qualify them to enter on the new duty of regulating all the intricate details which occur in the arrangement of academical concerns.

The town-council consists of seventeen members chosen from of the merchant company, and sixteen from the incorporated trades. By profession none of these gentlemen, we speak not of the individuals, are at all connected with letters, or necessarily in habits of communication with the learned, except the surgeon. The greater part of this body, therefore, from not having access to know the details of university education, will naturally be influenced in their opinion by the views of the individual who represents the only learned profession in the magistracy; and if the Honourable Patrons were to succeed in having their claims established, and to continue to exercise their powers to the utmost, the almost inevitable con-

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* De l'Etat des Gens de Lettres et des Hautes Ecoles.—Par M. Prunelle, 8vo, Paris 1819.

sequence would be, that the medical school of Edinburgh might come to be entirely directed by the views of one man—the President of the Royal College of Surgeons,—who, it is important to remark, is also at the head of another, and in some respects rival, school of professional education, quite independent of the control of the Honourable Patrons. It is curious to contrast with this excessive power, which the Patrons are unwarily struggling to vest in the hands of the representative of one of the incorporated trades, the care with which, in the instance of the erection of the Royal College of Physicians, the Universities of Scotland were protected from extraneous influence and interference, even on the part of those who, by professional habits, and their acquaintance with the progress of medical education at home and abroad, are best qualified to express their opinion on the subject.

"Per praesentes etiam specialiter providetur, jurium et priveligiorum suprascriptorum dicto Medicorum Collegio concessionem, ad scholarum pro dicta arte medica, aut qualibet parte docenda erectionem, seu gradus alicui eatenus conferendo et concedendo, nullo modo extendendam." Charter of erection of the Royal College of Physicians of Edinburgh, dated 29th November 1681.

The evil consequences of an extraneous jurisdiction in universities have not escaped the penetrating mind of Adam Smith, when considering the methods by which negligent professors might be compelled to discharge their public duty.

"If the authority to which he is subject resides, not so much in the body corporate of which he is a member, as in some other extraneous persons, in the bishop of the diocese, for example, in the governor of the province, or perhaps in some minister of state; it is not, indeed, in this case very likely that he will be suffered to neglect his duty altogether. All that such superiors, however, can force him to do, is to attend upon his pupils a certain number of hours, that is, to give a certain number of lectures in the week, or in the year. What those lectures shall be, must still depend upon the diligence of the teacher; and that diligence is likely to be proportioned to the motives which he has for exerting it. An extraneous jurisdiction of this kind, besides, is liable to be exercised both ignorantly and capriciously. In its nature, it is arbitrary and discretionary; and the persons who exercise it, neither attending upon the lectures of the teachers themselves, nor perhaps understanding the sciences which it is his business to teach, are seldom capable of exercising it with judgment. From the insolence of office, too, they are frequently indifferent how they exercise it, and are very apt to censure or deprive him of his office wantonly, and without any just cause. The person subject to such jurisdiction is necessarily degraded by it, and, instead of being one of the most respectable, is rendered one of the meanest and most contemptible persons in the society. It is by powerful protection only, that he can effectually guard himself against the bad usage to which he is at all times exposed; and this protection he is most likely to gain, not by ability or diligence in his profession, but by obsequiousness to the will of his superiors, and by being ready, at all times, to sacrifice to that will, the rights, the interest, and the honour of the body corporate of which he is a member. Whoever has attended for any considerable time to the administration of a French university, must have had occasion to remark the effects which naturally result from an arbitrary and extraneous jurisdiction of this kind."

Lastly, were the Town-Council to succeed, they would be guilty of *felo de se*, so far as regards their patronage of "ane free College" of equal authority and dignity with the other Universities of this kingdom; they would deprive themselves of the most honourable distinction ever conferred by the Crown upon a corporation; and nothing of the imparted prerogatives of royalty would remain to them, but the patronage of a certain number of offices. If, contrary to all expectation, they were to succeed in depriving their professors, assembled in senate, of those powers of regulating matters purely academical, which are by all considered as inseparable from the very nature of an university, they would deprive it of the character of an university; and when those, whose duty it is to maintain its station among similar institutions, and to do every thing in their power to add to its reputation and dignity, deny it the rights inherent in an university, we cannot expect that others will recognize them as existing in the magistracy. They will cease to be considered as the Patrons of a university.

The conduct of the Magistrates of Edinburgh till of late, acting simply as patrons of the medical school, has been highly and generally approved of. They appointed able men to the different chairs, and, knowing that on their exertions the character of the school must depend, left its regulations under the control of the professors. If the magistrates of the present day have failed of securing the services of men fit for the office of professor, they cannot redeem their error by withdrawing their confidence, and assuming to themselves a power which the public cannot suppose them capable of exercising with success.

The first of Dr Thomson's pamphlets relates principally to the preparatory knowledge to be possessed by young men, before they commence the study of medicine. Before entering upon the merits of the question, we may remark, that Dr Thomson does not require the possession of preparatory attainments in those only who seek the highest honours in medicine, but extends his view to all the branches of the profession. "It must be obvious, that those who are destined for the exercise of the medical profession, by whatever name they are afterwards to be denominated, whether that of physician, surgeon, or apothecary, should all receive the same kind of elementary and preparatory education." Hints, p. 8. And again, "the members of the medical profession, in order to be respectable, must evince, by their literary and scientific acquirements, that they are indeed worthy of the patronage of the public, and of the privileges to which medical degrees and surgical diplomas are intended to give them a title," p. 9. In like manner, the author of an excellent pamphlet on medical reform, published in 1809, while he recommends a preliminary examination of medical students, (though without specifying distinctly on what subjects) wishes a similar examination to be instituted for surgical students also, and by the same examiners.

Prunelle, whom we shall have frequent occasion to quote, is decidedly of the same opinion, and founds upon it a proposition for professional reform, which is worthy of attention. "Tous ces diverses intentions me sembleraient pouvoir être remplies, en rétablissant les anciens grades de bachelier et de licencié en médecine. Le premier de ces grades serait conféré dans la troisième année des etudes, après les examens nécessaires pour justifier une bonne instruction théorique; *ces examens seront absolument les mêmes pour les medecins et pour les chirurgiens.* On n'admettrait ensuite au cours de license, cèst-à-dire, aux études pratiques ou d'application des connaissances theoriques, que les seuls bacheliers, qui se diviseraient alors en deux séries celle des médecins et celle des chirurgiens," p. 25. We notice this particularly, because with many persons the chief advantage of the enforcement of a high degree of preparatory study for M.D. is, that it would draw a strong line of distinction between the physician and the other members of the profession. They argue, that, although the demanding of very high qualifications from the physician, would tend to lessen their number, the public would not suffer, as the same individuals would give them professional aid, but only under another denomination. This opinion is quite at variance with that of M. Prunelle and Dr Thomson, with whom on this point we agree. There is but a slight foundation, if indeed there be any, for the distinction between physic and surgery, in the nature of the diseases which these practitioners are required to treat, or in the modes of treatment by which the diseases themselves may be cured or relieved.

That a great deal of preliminary or preparatory knowledge would be of advantage, if it be not absolutely necessary, to those about to enter on the study of the profession of the healing art, is our decided opinion. Our doubts are in regard to the kind of knowledge, and the extent to which it shall be rendered imperative; and in this respect we conceive that there exist much prejudice and misconception. A proper selection of preliminary and accessory studies cannot be made without having a scheme of the whole at once before our eyes, otherwise we run great risk of being misled by our own partiality for particular branches. In the German universities, where professors lecture upon any subject they think fit, courses of lectures are often given upon what is called the Propædeutic of Medicine, or the Encyclopædia and Methodology of medicine; and various outlines of this summary view of the whole course of medical education have been published.*

In the number of Hermes for December 1825, there is a review of two recent works upon the subject, but the works themselves we have not seen.†

Our present purpose will be served by the following sketch, from Metzger, in which the various branches of knowledge, although not coinciding with the subdivisions in our schools, are arranged according to the ideas of modern methodologists.

A. PRELIMINARY STUDIES; not more connected with Medicine than with the possession of a liberal education in general

(a) Languages.
  Ancient—Latin, Greek, Arabic.
  Modern—English, French, German, Italian.
(b) Philosophy, Moral.
  Logic, Rhetoric, Metaphysics, History.
 Philosophy, Physical.
 Arithmetic, Geometry, Algebra, Geography, Astronomy.
(c) Natural Philosophy—General properties of matter.
  Mechanics, Hydrostatics, Pneumatology, Acoustics, Optics, Caloric, Electricity.

B. AUXILIARY SCIENCES, essentially connected with the profession of Medicine, although not strictly practical branches.

Natural History.
Botany.
Chemistry.
Anatomy—practical, comparative, pathological.

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* We have before us, D. Christ. Fried. Reuss, Primæ lineæ Encyclopediæ et Methodologiæ universæ scientiæ medicæ, et theoreticæ, et practicæ; omniumque ejus scientiarum tam præparantium quam affinium, ac subjunctæ cujisvis historiæ literariæ, pp. 570, 8vo, Tubingæ, 1783.

Skizze einer medizinischen Enkyklopädie, für den Anfang des neuenzehnten Jahrhunderts. Ein Leitfaden zu akademischen Vorlesungen, von J. D. Metzger, pp. 139, 12mo, Königsberg, 1804.

Des Etudes du Médicin, de leurs connexions, et de leur méthodologie. Discours prononcé à la rentrée de la Faculté de Médicin de Montpellier le 17 Novembre 1815, en presence de Monsieur Le Recteur de l'Academie et des Facultés assemblées. Par M. Prunelle, pp. 112, 4to, Montpellier, 1816.

† Lud. Herm. Friedlanderi, M. D. et P. de institutione ad medicinam libri duo, tironum atque scholarum causa editi. Halæ, 1823, pp. 241, 8vo.

Encyklopädie und Methodologie der Arzneikunde zu Vorlesungen entworfen, von D. Friedrich August Klose, Göttingen, 1823, pp. 1276, 8vo.

C. ESSENTIAL OF PRACTICAL BRANCHES.
- (*a*) Hygiene.
    - Physiology.
    - Dietetics.
- (*b*) Jatrike.
    - General Therapeutics.
        - Pathology, Pathogeny, Nosology, Aetiology, Symptomatology.
        - Pharmacology, Toxicology.
    - Special Therapeutics.
        - Practice of Medicine, Clinical Medicine.
        - Practice of Surgery, Clinical Surgery.
        - Midwifery.
        - Medical Jurisprudence.
        - Veterinary Medicine.

D. APPENDAGES.
- Medical Police.
- History of Medicine.

An intimate acquaintance with the dead languages is represented as indispensable to a physician. At an early period of life, and before the mind is prepared for the study of a profession, the study of languages is one of the most proper exercises of the mental powers. But the knowledge of languages in itself, derives its chief utility from its facilitating the acquisition of useful knowledge; and therefore, as the mind may be nearly equally disciplined during the acquisition of any one language as of any other, their utility is directly proportional to the value of the information contained in the books written in them. Now, leaving to Latin, although no longer the medium of communication among the learned in Europe, its precedence derived from long established use,—when the other languages are tried by this criterion of their utility, we must rank them in the following order, French, German, Italian, Greek.* If all cannot be acquired or retained, if one must be given up, we say, without hesitation, the Greek; and this, in fact, is the practice, not of physicians only, but of all who are engaged in the pursuit of the physical sciences. "For how many are there of an hundred," says Locke, "even amongst scholars themselves, who retain the Greek they carried from school; or ever improve it to a familiar reading and perfect understanding of Greek authors;" while, even at an advanced age, many labour to acquire the German, for the sake of the vast treasures of information it renders accessible to them. It is argued in favour of the study of the Greek language, that it is the language of the fathers of physic; and that the terms of medical art have been almost all borrowed from it and the Latin; and that it seems impossible to understand properly their meaning, without possessing some knowledge of the sources from which they have been derived. The first argument would be nearly equally conclusive in favour of the Arabic, that physicians might read Avicenna and Rhazes in the original; and, with regard to the last, we shall reply, on the authority of Dugald Stewart. "It is in many cases a fortunate circumstance, when the words we employ have lost their pedigree; or (what amounts nearly to the same thing,) when it can be traced by those alone who are skilled in ancient and foreign languages. Such words have, in their favour, the sanction of immemorial usage, and the obscurity of their history prevents them from misleading the imagination, by recalling to it the objects or phenomena to which they owed their origin. The notions, accordingly, we annex to them, may be expected to be peculiarly precise and definite."—Stewart's Phil. Essays, p. 184. Indeed, all attempts at descriptive terminology have utterly failed, and have impeded, instead of advancing the progress of knowledge. The celebrated French nomenclature of chemistry will serve as an example. If we take *oxygen* as a mere arbitrary proper name, it serves the purpose of designating a substance possessed of certain properties, the knowledge of which is daily extending; but if we attend to its meaning, as a Greek derivative, it represents it as the generator of acid: whereas we now know that oxygen generates alkalis and earths, as much as acids, and that other substances, besides oxygen, generate acids. Hydrogen, azote, nitrogen, are equally objectionable, except as arbitrary proper names, and it is only as arbitrary names that they are now universally known by chemists. Then what confusion has been introduced into the nomenclature of disease, by the abuse of a knowledge of the Greek tongue? Witness the terminologies of Swediaur, Mason Good, and many other neologists, which have had no other effect than to impede the dissemination of any addition to our knowledge that may be otherwise contained in their writings.

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* In regard to a considerable number of our students who enter as surgeons into the service of the Honourable East India Company, Arabic holds the third, if not the second place in point of utility.

If it should be said, that, although a knowledge of Greek is in itself of no value to a medical man, it is yet valuable as a sign that he has received a liberal education, such as befits his profession. The answer is, that no doubt in some parts of this country, and in a certain rank of society, a knowledge of Greek is so esteemed; but that it is by no means exclusively for those parts of the country, or for that rank of society, that the graduates of this university are destined; and that, if their destination were so limited, the education and examinations for the Edinburgh degree would be much less generally useful to mankind than we verily believe they are at this moment.

When we compare the branches of Natural knowledge, as connected with the medical profession, we cannot subscribe to the opinion maintained by our reformers, that natural philosophy is as indispensable a branch of medical education as chemistry. Besides the obvious argument that chemistry, scientific and extensive as it has now become, originated with physicians; and when first made an essential branch of medical education, was little more than chemical pharmacy, which it still embraces; it enables us, since the great progress recently made in vegetable analysis, to bring the reputed virtues of many drugs to a test, almost amounting to certainty; and, in its whole extent, it has a much more intimate relation with animal physiology and pathology than natural philosophy has. We need not quote examples. It is sufficient to consult any chemical system, and to observe the extent and importance of what is called animal and vegetable chemistry. But, in treatises on natural philosophy we find no such direct connection with the animal body. It is well known how complete was the failure of the Iatro-mathematicians. Natural philosophy is the science of dead matter; the physician deals with living bodies, whose distinctive vital properties far overbalance the dead machinery. No surgeon, reducing a luxation, thinks merely of the physical forces connected with the joint; he proceeds upon a knowledge of the parts as endowed with life, and possessed of properties known by experience, but not to be subjected to calculation. How little benefit is derived from optics in treating diseases of the eye; or from acoustics in regard to those of the ear? and the little that is useful is easily and advantageously explained at the time by the professor who has occasion to mention its application. Although it may be admitted that students of medicine would derive benefit from a course of experimental philosophy, the greatest sticklers for preliminary education do not wish that they should be able to follow a course of it, as it is or ought to be taught in universities as a branch of science. "Les hautes mathématiques," says Prunelle, "et les mathématiques appliquées qui tiennent une place si distinguée dans les facultés des sciences, sont tout-à-fait hors de la sphére des études medicales."

The importance of a special knowledge of the philosophy of the mind has been greatly overrated, and seems to us to be misunderstood. We admit that a physician ought to reason accurately, that he should possess a knowledge of the faculties of his mind, as well as of those of his body, and of his duties to himself, society, and his Maker; and that he should be fully aware of the reciprocal influence of the mind and body upon each other. But we very much doubt whether the common method of teaching the moral sciences, involving, as it does, many useless metaphysical controversies, will aid his acquisition of this knowledge. In fact, great part of his professional studies is a perpetual practical exemplification of reasoning and induction, more valuable than the possession of scholastic canons; * and much of what is most valuable concerning mind fairly enters within the province of physiology and pathology. We are happy to be able to quote, upon this subject, an author whose authority will not be disputed.

"I think I can perceive," says Dugald Stewart, "within the period of my own recollection, not only a change to the better in the philosophy of the human mind, but in the speculations of medical inquirers. Physiological theories, concerning the functions of the nerves in producing the intellectual phenomena, have pretty generally fallen into contempt: and, on the other hand, a large accession has been made to our stock of well-authenticated facts, both with respect to the influence of body on mind, and of mind upon body. As examples of this, it is sufficient to mention the experimental inquiries instituted in consequence of the pretended cures effected by means of animal magnetism and of tractors; to which may be added, the philosophical spirit evinced in some late publications on Insanity." p. 200.

Commendation from such an authority outweighs all the vague declamation lately uttered against physicians, as being ignorant of moral philosophy, and incapable of accurate reasoning.

Nor can we agree with Dr Thomson, when he maintains, that "a knowledge of the science of mind, and of every thing which can influence the perceptive, intellectual, and moral powers of man, becomes *absolutely necessary* to him, whose duty it often is to judge of the existence of the derangements which so frequently take place in this part of the human constitution, from external injury, from disease, and from the states of fever and madness—to describe their varieties, and to conduct their treatment," p. 7. The philosopher has obtained a valuable accession of facts, connected with the diseases of the mind, from the physician; but philosophy has, hitherto at least, given little or no assistance to practitioners to facilitate the diagnosis, the theory, or the treatment of these diseases. All our useful knowledge of this subject is the result of observation and experience, not of speculative philosophy.

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* "To a great proportion, even of the learned, the rules of a sound logic are best taught by examples."—Dugald Stewart, in Supplement to the Encyclopædia Britannica, Vol. v. p. 205.

It is also a favourite topic of declamation to place natural history in general, on a level with botany. But, independently that botany, if we may say so, is in possession of the preference among the immense extent of subjects which natural history embraces, there are sufficient reasons for not disturbing the established order. The study of natural history, in all its extent, would interfere with the acquisition of professional knowledge. The course of natural history given by Spallanzani in the University of Pavia occupied five sessions; and in Paris more professors are employed in teaching natural history alone, and its connected sciences, than the whole number of the faculty of medicine in the University of Edinburgh. Botany, as one of the branches, suffices to teach the art of describing natural bodies, and the principles of their classification; and in treating of vegetable, it illustrates animal physiology by perpetually recurring analogies. Besides, botany is more connected with medicine, than any other branch of natural history is. By far the greater number of our remedies are derived from the vegetable kingdom. The earliest botanists were all physicians, and the earliest lists of plants were of those which were useful in medicine. Almost down to the time of Linnæus, every writer on botany added to the technical description, the medical virtues and uses of the plant, as that part of the science which constituted its chief value. In modern times the natural arrangement of plants often assists us in discovering substitutes for drugs of acknowledged virtue, and for distrusting or giving belief to the properties assigned upon limited observation. "Dans l'exposition méthodique des objets dont nous traitons, nous avons adopté l'ordre des familles naturelles, comme etant à la fois le plus satisfaisant pour l'esprit, et le plus propre à généraliser les idées. En effet, nous verrons que les végétaux qui se trouvent rapprochés et réunis par l'analogie de leurs formes extérieurs, et de leur structure interne, jouissent generalement de propriétés medicales analogues, et quelquefois entièrement semblables.*

In making these comparisons between the relative value to a medical student of different kinds of knowledge, we trust that we shall not be considered as recommending ignorance, or depreciating any species of learning; but we wish to set limits to the unreasonable demands which are vaguely made upon the medical student. In devising plans for the reform of the education of professional men, it is, in our opinion, of the greatest consequence to keep constantly in view the distinction between those kinds of literary and scientific knowledge, which are absolutely indispensable to the safe exercise of the profession;

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* *Richard*, Botanique Medicale, Preface, p. viii. See also De Candolle.

those which it is desirable and for the interest of the practitioner that he should possess, and those which are merely ornamental. Any system which will have a tendency to lead him to neglect any branch of which he ought not to be ignorant, will never be compensated by any extent of knowledge of those of which his ignorance is harmless. Medicine is a practical profession. That knowledge is most essential to its students, which renders them the most useful servants of the public; and all reputation for extrinsic learning, which is acquired at the expence of practical skill, is meretricious, and deceives the public by dazzling their judgment.

Even many of those who advocate most strongly the importance of previous education, are fully aware of the necessity of putting limits to its extent; and know how little the present mode of teaching the accessory sciences followed in most universities is adapted to the wants of the future medical practitioner. " La science de la médecine est tellement vaste, que toute étude étrangère a l'objet qu'elle a en vue, devient par cela même inutile; proposition qui me semble fondamentale dans tout système bien entendu d'enseignement médical. Le besoin impériaux de tout savoir, qui se fait sentir si naturellement à votre age (M. Prunelle is addressing the students of Montpellier) vous empêchera souvent de déterminer la limite ou il convient de vous arrêter sur chaque sujet; souvent aussi votre imagination vous attachera de préférence à ce qui la flatte davantage, et vous éloignera de ce qui est plus essentiel."—P. 46, Prunelle.

The same idea is enforced by a learned German critic. " Philosophy, botany, mineralogy, zoology, chemistry, physics, and the like, are treated of by their respective professors, not in that point of view, or in that manner which the physician requires in the sequel of his practical life and employment, that is, as accessory sciences; but each is followed out in its whole extent and in detail, so that the pupil who has not yet learned to distinguish what is essential from what is not essential, and what is more important from what is less important, and is unable to commit accurately to memory all that he hears, runs the risk of retaining much with which he might dispense, while he overlooks other things of which he should certainly have made himself master. Amid the variety of objects of the most different nature which press at the same time upon his mind, the dryness of some of these studies which require great exertion of the memory often misleads him to neglect them altogether, and to devote himself exclusively to one or two which have more attractions; and he becomes, for example, an enthusiastic botanist, mineralogist, and so on, and dispenses with that kind of knowledge which is necessary for his future progress in the study of medicine. His predilection for one or other of these branches passes with him from his academical into his practical life; but here he must renounce it, whether he will or not, and he at last finds, to his great dismay, that he has been mistaken concerning that kind of knowledge which is now most useful to him." Hermes, Dec. 1825.

Also in the Parisian regulations emitted in July 1820, in which the degree of *Bachelier des sciences* is required of every one before he inscribes as a medical student after 1st January 1823, it is expressly stated, that the degree of bachelor requires of those who devote themselves to medicine, only the branches of scientific knowledge *necessary to them*; thus distinctly admitting the impropriety of requiring of them the whole extent of knowledge necessary for obtaining the degree in Philosophy, or A. B.

Professor Jardine of Glasgow, whose opinions on the subject of education have so much weight, is the last authority which we shall quote.

> " Classical learning, mathematics, and the elements of philosophy, are no doubt very useful for giving a suitable employment to the intellectual powers of youth; and, for this reason, they ought to be continued as the principal occupation of the under-graduate course. But other studies, besides these, are necessary to qualify men for the business of life; for, if the education given at college is meant to have any reference to the conduct of affairs in the ordinary departments of human pursuits, I maintain that there is at present an utter incompatibility between the means and the end.
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> " Take the most favourable view that can be taken of ancient literature and geometry, of the systems pursued in our universities, of the books that are read, the lectures that are given, and, above all, of the exercises which are required on the part of the students, and it must be admitted, by every candid person, that the business of universities has very little relation to the business of life; affording but a very indifferent preparation for future eminence or success, in those fields of exertion, into which the great, the wealthy, and the ambitious, are the most likely to enter."

In fact, one great defect in the education of medical practitioners in general, is the want of habits of business, their neglect of keeping a journal of their transactions, observations, and reflections, ignorance of the method of conducting and preserving their correspondence, and, sordid as it may be thought to be, inattention to keeping accurate accounts of their professional receipts. Greater regularity on the part of medical practitioners in respect to these matters would be advantageous to their patients and the public, as well as to themselves.

Dr Thomson adduces, in confirmation of his opinion as to the necessity of preparatory study before entering upon that of medicine; 1st, the opinions of other competent judges; 2dly, extracts from printed works on the subject; and 3dly, the provisions made for the education of a physician in the statutes of different universities.

The opinions of Dr Peter Reid, Dr Abercrombie, and Dr Kellie, are specially brought forward, and we are compelled to examine their weight, though we trust with that delicacy which our respect for their acknowledged talents insures. Dr Reid says, "why the preliminary discipline of a liberal education should not be enforced in medicine as well as in law or divinity is altogether unaccountable." But the statement here made is erroneous, for, in regard to *law*, no preliminary education whatever, nor even any compulsory professional education, is required. Dr Reid claims the merit of being a competent judge of the matter. "It may not be improper to state, that I have had opportunities, which can fall to the lot of few, of appreciating the effects of medical education, having been employed for many years in teaching the different departments of medicine to advanced students of the most liberal class." In short, Dr Reid is one of those highly respectable individuals to whom the medical education of this place is greatly indebted by their method of teaching the various branches of medicine by examination, thus supplying, in a more efficient way than could be done by the professors themselves, what has been considered as a defect in our system of academical education by prelections. But it must be remembered, that to these private tutors those students especially have recourse, who have doubts as to their competency to undergo the examinations; and that it is the peculiar excellence of this mode of education to detect the deficiencies of even the best informed that they may immediately supply them. Therefore, the defects, and not the merits, of each individual pupil chiefly engage their attention, which must naturally lead to a rather unfavourable opinion of their acquirements.

Dr Abercrombie, though friendly to preliminary education, is aware of the difficulties, but thinks there are various ways in which they might be overcome; but, as he has not stated any of these, we may assume that he had not digested any.

In our excellent friend Dr Kellie's letter there is more wit than logic. It seems chiefly intended to introduce Sir Robert Sibbald's celebrated advertisement, that he was to give lectures on natural history and medicine, but to these only "*qui callent linguas Latinam et Græcam, omnem philosophiam, et matheseos fundamenta*," from which it is concluded, "Sir Robert Sibbald was a fool, that is clear. He would have sold more tickets had he been less scrupulous." But it does not appear that Sir Robert sold any tickets, or had any intention to *sell* tickets, and it is not known that he ever had a pupil, or ever read a lecture. It is more probable that the advertisement was a mere venial ebullition of pedantic vanity. At all events, it is certain that no advantage whatever to science, or to mankind, resulted from the restrictions he thus imposed upon himself. Bower has preserved the advertisement, and his observations upon it are judicious. "By restrictions of this kind, the cultivation of science is materially retarded, because men of genius are prevented from having access to the proper schools for instruction. Besides, a man like Sibbald, so enthusiastically attached to his profession, rendered himself less useful than he might otherwise have been."—Vol. ii. p. 59.

Dr Thomson also states, that he has the satisfaction to know that his Hints express the opinion very generally entertained by the better informed part of the medical profession in Scotland. We have no doubt that he has received commendations from many who really think as he does, but we suspect also from many who are either biassed by his seductive eloquence, or express their assent without giving themselves the trouble to examine the question. Nor are we surprised at the general concurrence, because there can scarcely be a difference of opinion upon the abstract proposition, that a knowledge of letters and philosophy is advantageous to practitioners in medicine.

The published opinions to which Dr Thomson refers are by Dr Hosack, Dr Beddoes, M. Prunelle, and Dr A. T. Thomson. These generally refer to projected plans of reform, and not to realities which have stood the test of experience. Dr Thomson has praised, and very justly praised, M. Prunelle's discourse, and has expressed a wish that the practice of opening in a similar manner the academic session of the different faculties were adopted in the universities of this country. We believe, that, for some years past, in regard to the medical faculty in this university, Dr Thomson's wish has been anticipated, though very imperfectly, compared with the truly learned oration of the French professor. Dr Thomson has remarked upon Dr Hosack's introductory lecture, that "the attainments which the professor expects of the American students are greatly superior to those which the generality of young men entering on the study of medicine in this country are known to possess." Dr Hosack indeed says, that he *presumed* that the greater part of his audience possessed the knowledge of the various subjects, which he enumerates; but this is a mere rhetorical form of speech, for he could not, consistently with truth, presume it; and the inference which Dr Thomson draws as to the inferiority of the preliminary education of the Edinburgh to the American student is, according to our observation, altogether unfounded. America is making wonderful progress in science, but utility, for which we contend, is their polar star.

The example of the continental governments is the last kind of argument which Dr Thomson employs. It may be admitted that, in certain particulars, advantage may be taken of what has been found by long experience to answer in other countries; but it is only in those particulars where there is no essential difference in the general policy of the countries, as affecting the object in question. But between the Scottish medical schools, and those on the continent, recommended for our imitation, there is no analogy. The preliminary education and the academical course, in such countries, are under the same despotic power, and are, therefore, without any difficulty, adjusted to each other. The teachers in the continental universities are salaried officers of government, and in some of them totally independent of their pupils; and the pupils, when they have completed their education, as prescribed by government, get in return from government, a monopoly of the practice of their profession. In those countries the title of M. D. is not merely an honorary distinction, but a valuable possession, which is necessary to entitle any one to practice as a physician, while, having obtained it, the physician is protected by the strong arm of the law, in the full possession of his rights and privileges.

Other arguments are used to enforce the propriety of an extended preliminary education. Some venture to represent the graduates of Edinburgh as not having a sufficiently liberal education,—as being illiterate and ignorant to a degree that degrades the profession. This is certainly not the opinion of the public at large. The title of M. D. from Edinburgh confers no privileges that are not conceded to the other denominations of the profession. It is merely an evidence of a certain kind of education, and of a certain amount of knowledge in the possessor; and that the kind and amount of such knowledge are highly appreciated by the public, is evinced by the estimation in which the Edinburgh degree is held in all parts of the world. Prunelle has been referred to by Dr Thomson. Speaking of the advantage of uniting the study of medicine and surgery, he says, "On ne trouve d'enseignement médical public qu'à Dublin, à Glasgow, à Edimbourg. Cette dernièr université qui est la plus celebre des toutes, reunit les professeurs en medecine, et en chirurgie." Again, he places Edinburgh at the head of well regulated medical schools: "Les succes constans obtenus par les ecoles d'Edimbourg, de Gottingen, de Halle, de Leyde, de Pavie, de Vienne, deposent en faveur de l'enseignement collectif des universities," p. 55.

Another attempt of the same kind is made by representing the character of M. D. obtained at Edinburgh as having declined, and as being no longer a title implying learning in the individuals on whom it is bestowed. This we are disposed to deny. From a far more intimate acquaintance with the students, their habits and qualifications, than that possessed by many who are loudest on the subject, we have no hesitation in asserting, that the medical students of the present day are more assiduous in the prosecution of their studies than their fathers were; that their attention is more directed to the acquisition of real knowledge, and less engaged with metaphysical hypotheses; that they leave the school better anatomists, better physiologists, better pathologists, better chemists, better botanists, better naturalists, better pharmacologists, and more qualified to practice physic, surgery, midwifery, and juridical medicine. They are fitter to enter into the service of the public; and this is what the public requires of those upon whose services they have to rely in times of difficulty and distress.

There is no surer criterion of the value of any commodity than the demand for it, taken in connection with its price. When estimated by this standard, we are led to this conclusion, that the degree of M. D. got at Edinburgh is more valued by the public, than the same degree when obtained at other universities. Students come here from all parts of the British empire to present themselves as candidates for the highest honours in medicine, although these might be obtained elsewhere at a less cost of time and expence; because they themselves value it more, and they believe it to be more esteemed by the public. Not unfrequently the university of Edinburgh confers the degree of M. D. on gentlemen who already possess A. B. from Trinity College, Dublin, and who might have obtained M. B. and ultimately M. D. in their original Alma Mater or *ad eundem* in Cambridge or Oxford. This sufficiently proves that the degree of M. D. from Edinburgh is to some persons, and in some places, more valuable than the same degree from these other universities, notwithstanding that in these a much fuller preliminary education is required. As it does not convey the same privileges and immunities, this must be solely on account of its higher reputation in a professional character.

The progressive increase of the medical graduates at Edinburgh during the last fifty years, appears from the following table of the numbers who received the degree of M. D. during each successive period of five years, ending,

Years,	1781	1786	1791	1796	1801	1806	1811	1816	1821	1826	Total.
Graduates,	128	131	151	175	233	242	258	366	534	574	2792.

Of these 819 were Scottish, 706 English, 848 Irish, 225 from the British colonies, and 193 foreigners of all descriptions.

It is thought by some, that there are too many graduates in medicine, and that any change, by which the number should be lessened, would be an advantage. If by this be meant that it would promote the interest of those who graduate, it may be admitted for the sake of argument; but, if it be intended to express an opinion, that it would be for the interest of the public that the number of physicians should be reduced, whether that of the other classes of the profession should be proportionally increased or not, we dissent from it entirely. When there is no undue encouragement, no bonus given for men to enter into a particular profession, the supply will never for any length of time exceed the demand; and there is no profession which has so few good things to be enjoyed by its members as that of the physician. On the contrary, his monopoly is always, if such an expression can be used, negative. He is prohibited, and sometimes foolishly prohibits himself, from exercising his talents and skill in the manner most beneficial to himself and to the public, and the consequence is, that the proportion of physicians to the population, and to the other branches of the profession, is smaller in this kingdom than in foreign countries. In a recent publication* there is a curious comparison of these proportions in London and Paris, of which the following is an abstract,

	Inhabitants.	Physicians.	Surgeons.	Apothecaries.
London,	1,200,000	174	1000	2000
Paris,	800,000	600	128	181

In London the physicians are to the surgeons as one to six, to the apothecaries as one to twelve, to both united as one to eighteen. In Paris the physicians are nearly five times as numerous as the surgeons, more than three times as numerous as the apothecaries—twice as numerous as both.

This difference would be of little consequence, if the professional education of all the branches were equally good; but while the education required of the physician in Edinburgh at present is indisputably superior to that of the others, in regard to the kind of knowledge chiefly required in practice, this difference cannot but be injurious to the British public.

Our general notion in regard to the merits of medical schools in this country is, that these should be judged of neither exclusively by the amount of knowledge required of their graduates, nor exclusively by the number that take the degree, but in the *compound ratio* of the two. It is not the most complete education that can be given to medical men, but the most complete education that the great body of practitioners can be induced to take, that the public interest requires.

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* An Exposition of the State of the Medical Profession in the British dominions, and of the injurious effects of the monopoly by usurpation of the Royal College of Physicians in London. 8vo, London 1826.

It is a great mistake to suppose that the medical students would continue to resort to Edinburgh, although without the expectation of receiving the distinction of a degree; or that, although by raising the required qualifications many fewer degrees would be granted, the numbers of students would not be diminished, as they would take diplomas in surgery. If Dr Thomson's views were adopted, and the same preliminary education required from surgical as from medical students, their numbers would be equally affected. Even if the notion of some persons were followed, that the possession of extensive learning should be the line of distinction between the physician and the surgeon, we fear much that few strangers would come here for the sake of studying surgery only. One great advantage of Edinburgh as a professional school, is, that a student may, at the same time, and without any additional expence, be qualifying himself for becoming a candidate for the degree of M. D. and for a diploma in surgery; and, in fact, many of our pupils take both; sometimes in the same session, but frequently after passing as surgeons, and spending several years in the public service in the army or navy, they return, and at last obtain, and most deservedly, the highest honours in medicine. But if the degree of M. D. were placed entirely out of their reach, we fear that few Englishmen or Irishmen would prefer Edinburgh as a school of surgery to London or Dublin.

We are also told that physicians and surgeons, in consequence of an extended preliminary education, are to become not only wiser, but better. "That a similar course of preparatory education" to that required of students of divinity, "should not hitherto have been required of those who enter upon the study of law or physic, is a great misfortune to these professions; and the want of it the chief source, perhaps, of whatever has been illiberal, sordid, ignorant, or mischievous in the practice of them." We are here associated with the gentlemen of the long robe, who are entitled to precedence, and they will, doubtless, hasten to adopt so easy a method of purifying their profession from all its stains. The following piece of declamation is somewhat to the same effect. "The enforcement, therefore, by our universities, and by the colleges of physicians and surgeons, on those to whom they grant medical and surgical degrees and diplomas, of a due acquaintance with those branches of science which are universally acknowledged to be necessary to the study of medicine, is the indispensable duty of these bodies, and appears to me to be the greatest reform which the present state of medical education admits of; to be the only proper barrier that can ever be raised by the medical profession, or which ought to be recognized by the public, as forming a boundary between the regular or irregular practitioner of physic—between medicine practised as a learned and liberal profession, or followed as an ignoble, degraded, and degrading art." All this is very well said; but a great deal more is necessary to attain the wished-for end than compelling every physician to read Greek and be an adept in philosophy; and we cannot avoid borrowing the concluding sentence of a letter from Dr James Gregory to Dr Harrison, when labouring, about twenty years ago, to bring about a similar reform in the state of the medical profession.—"In short, I cannot help thinking, that before your proposed reform be accomplished, physic must be made more perfect, physicians more honest, statesmen more enlightened, and the bulk of mankind much wiser and better than they are at present, or have ever been, or are likely to become in our time."

As Dr Thomson has laid down no specific plan for the extension of preliminary study, which he generally recommends so strongly, we are not quite certain in what respect, and to what extent our views are different. On some occasions he speaks of a *due* acquaintance with those branches of science which are *universally* acknowledged to be necessary to the study of medicine; but on other occasions he specifies more distinctly a competent knowledge of the Latin and Greek languages, of the elementary parts of mathematics and natural philosophy, and of logic and moral philosophy. From other passages we might infer that to these are to be added arithmetic, rhetoric, history, natural history.

The amount of the knowledge of the various branches required is also not distinctly specified. The important words *due* and *competent* are left altogether without explanation. Nor have we more precise information as to where or when the knowledge is to be obtained, or how the possession of it is to be ascertained. From the praise bestowed upon the prospective regulations of Aberdeen and St Andrew's, and the recommendation that equal qualifications should be required in all the Scotch Universities, we might infer that Dr Thomson's plan was, that every one, before becoming a candidate for the degree of M. D., should be possessed of that of A. M. from an university. Other expressions, however, seem inconsistent with this inference.

Dr P. Reid is "for insisting that every young man, before he is admitted to enrol his name as a medical student, shall give satisfactory evidence of his having had the advantages of a liberal education." Jatros proposes that, besides exacting of the candidates for the medical degree, a competent knowledge of the accessory studies proposed, there should be required of him some proof of proficiency in the different branches of natural philosophy and natural history. Dr Kellie is for adopting some plan, and Dr Abercrombie thinks the difficulties might be overcome in various ways. Dr Hosack permits the student to supply the defects of his education during the period of his professional study. By a new regulation at Berlin the students, previous to their medical examination, are to be tried before the Faculty of Philosophy. In the Netherlands, no student is permitted to attend the medical lectures without having previously obtained the degree of candidate in the mathematical and physical sciences; and nearly the same is required by the recent regulations of the Parisian school.

By the present statutes of the university of Edinburgh it is intended that the possession by the candidate of a due and competent acquaintance with the branches of science universally acknowledged to be necessary to the study of medicine, should be ascertained during his professional examination. If, however, the production of additional evidence were required, it would not be easy to fix what kind of evidence would suffice. It cannot be expected that young men should come from the remotest corners of England or Ireland, and even from the colonies, uncertain whether, before they be permitted to commence their medical studies, the evidence they have to produce will be deemed sufficient. The same objection applies to a preliminary examination, whether that examination were conducted by the Faculty of Medicine, or that of Philosophy. Again, if we get the better of this difficulty by allowing students to supply their deficiency after they arrive at the university, and during their professional course, the objection is, that the period of study must either be prolonged, and the expence increased, or their attention will be diverted from their chief object. The same arguments apply more strongly against the necessity of a previous degree in arts. Formerly, we believe, the universities of St Andrew's and Aberdeen granted the degree of A. M. at the same time and upon the same evidence that they conferred the degree of M. D., and they were held in equal estimation. But if a *bona fide* degree of A. M. in a Scottish university should be required before a student in this country be permitted to enrol as a student of medicine, it would add four years to his academic education and residence. On the other hand, were a student to attempt to carry on a full course of philosophy and medicine at the same time, he would make but little proficiency in either, and the probable result would be, that he would acquire neither degree.

The addition of four years of preliminary study would more than double the expence of an education which many find already almost beyond their means. Some persons are of opinion that this would render the title of physician more respectable, by confining it to the wealthier class of students. We have already given our reasons for dissenting from this opinion, which we conceive to be both erroneous in itself, and inconsistent with the spirit and institutions of a free country. In this respect, it is worthy of notice, that the reformers of the state of the profession on the other side of the Tweed entertain very different views from those which we have thought it our duty to combat.

"In respect to medicine especially, whether we consider the great number of the natives of Scotland who cultivate that department of science, or the influx of students from England and Ireland, as well as from our colonies and foreign countries, resorting to the Scotch universities, or the cheapness of education which so strongly recommends them, we do not think it would be either judicious or just to suppress any of them. Whatever multiplies expence to the young physician, whether for education, examination, or admission to practice, has a direct tendency to limit the number of the cultivators of that branch; to augment, in the same ratio, the discordance and disproportion of the other branches of the profession; to increase empiricism, and to prolong monopoly."*

A great increase of the expence of education is still more objectionable, if it be incurred for the sake of objects which give their possessors little professional superiority. The evil consequences of such a system have been well exposed by an author, whose views of medical reform are consonant to the soundest principles of political economy.

"Of this body (the Royal College of Physicians of London,) the general policy seems to have been to insure a high degree of learning on the part of its members, rather than to supply the public with medical practitioners proportionate to its necessities. And the effect has been in a great degree similar to what we have already seen to result from the Papal restrictions imposed on the clerical physicians of the continent. For, by requiring a high degree of literary qualification for its associates, it necessarily narrowed the institution, and rendered it inadequate to supply the wants of the community." †

If greater preliminary and extra-professional knowledge should be required than the students in general possess, they should be furnished with the means of acquiring it at little expence, and without interfering with their professional studies. The reform must be carried back to the schools and academies where they are in general educated from their twelfth to their eighteenth year, and during these years much knowledge useful to a physician might be acquired, if it were easily accessible. These are, however, dispersed over the whole empire, and are entirely independent of university control. For those students, again, whose circumstances permit them to spend a portion of these years in university attendance, it would be essential that those branches of philosophy and natural knowledge, considered as necessary to them, should be taught to them in the extent and manner best calculated to facilitate their acquisition of professional knowledge, and most likely to be of use to them in their professional career.

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* *Exposition, &c.*

† Edinburgh Medical Journal, Vol. xix. January 1818.

We do not mean to say that these difficulties are insuperable, and that nothing can be done to fix and secure a certain amount of previous general knowledge in the candidates for the medical degree. But we are sure, that whatever is done with this view should be done very cautiously, with a thorough knowledge of the difficulties we have stated, and with due regard to the feelings of the public, as to the kind of knowledge which they chiefly require, and will most liberally encourage in medical practitioners. And, in the meantime, we think the Senatus has done right, first, in beginning the reform by improving the strictly professional education of the graduates; and, secondly, in maintaining the principle, that whatever changes are adopted shall be imperative only on those who commence their studies subsequently to their adoption.

The degree of M. D. from Edinburgh or Glasgow, while it is a degree of honour also, is chiefly prized as recommending its possessor, when a candidate for medical practice; and the expence, and time, and trouble in obtaining it, must be, to a certain extent, proportioned to the remuneration expected in subsequent professional emolument. But this emolument, to a large proportion of the Scottish graduates, must be small, and never can be but small. Any little addition to the time and expence of study which might be still made would be best occupied, even yet, in professional study, because, in every one of its branches, medicine has made, and is making, great steps, which render it more and more tedious to master; and there are branches, not imperative on students, some strictly medical, and others medico-general, which ought, under the circumstances, to rank before preliminary study.

The title of M. D. obtained from the university of Edinburgh or of Glasgow, expresses the fact, that its possessor is learned in medicine; the same title is conferred by the English universities, not for learning in medicine, but in letters and philosophy. It is there, if we may use the expression, a false title.[*] The title of M. D. should be confined to those learned in medicine, and should be accessible to all such duly qualified. If necessary, another title, such as Phil. D., more consistent with the truth, should designate those learned in philosophy; while those who are learned both in philosophy and in medicine should be distinguished by uniting both titles, and writing themselves Phil. et M. D. as is the practice in many universities on the continent. We would therefore think it advisable that students might have it in their power to obtain either or both degrees, according to the extent of their qualifications. In this way the comparative value of these degrees in the estimation of the public would soon be brought to the test of experience. But we should consider it a dangerous experiment to alter entirely, from speculative opinions, the character of the degree of M. D., as obtained in the Scottish universities where the profession is taught. The commodity suits the market, and the market suits the commodity. Any change which would put it out of the reach of the purchaser, would either force him to look for it elsewhere, or to put up with an inferior article.

It must also be kept in mind that the various plans of reform proposed are local in their operation; that they are confined to Scotland, and do not extend to England and Ireland. For the sake of argument, we shall admit that the preliminary education enforced in the universities in the other divisions of the British Empire is perfect, or at least sufficient, although a late anonymous writer, who seems conversant with the matter, has given us no very high idea of the knowledge which will suffice to obtain the degree of B. A. in Cambridge.[†] But in the English universities there is no provision made for the teaching of medicine or surgery, nor any course of medical study required from candidates for the degree of M. B. To render any reform of medical education general and equal in its operation, it would be more necessary to enforce an adequate professional education in the English universities than to enforce preliminary education in the Scottish; otherwise the degree of M. B. would be acquired in England at a less expence of time and money, than that of M. D. in Scotland; and, we need not add, that, if this change should induce medical students to go to the English instead of the Scottish universities, the diminution of professional knowledge would not be compensated by the increase of extra-professional learning.

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[*] This discrepancy between the sign and the thing signified has been noticed by Mr Kelsal in regard to Cambridge. "If the present system be persisted in, it would surely be but fair to annul the titles B. A. and M. A. and substitute those of B. M. D. and M. M. D. (Baccalaureus et Magister Mathematicarum Disciplinarum) as squaring not only better with the examinations whereby the degrees are obtained, but also with the rigour of mathematical truth."—Phantasm of a University, p. 33.

[†] The questionist or candidate is expected to take into the Senate-House—the vulgar rules of arithmetic, four books of Euclid, and the first part of algebra, as that science is divided in Wood's Elements. Dr Monk, late tutor of Trinity College, is quoted, for asserting, "Except in very few cases the whole may be acquired in less than a year; thus leaving two years and a half to be employed in a way of which the university exacts no account."—London Magazine, March 1826.

The end of public education, it has been truly said, is not so much to cultivate the minds of a select few, as to diffuse information as widely as possible among the many, and to make all men, whether more or less favoured by nature, (or circumstances,) as accomplished as their several capacities will allow.* By increasing the qualifications required for obtaining university honours beyond what the state of the profession can bear, or the demands of the public justify, a large number of those who would otherwise have received a moderate share, at least, of university education, must remain without any. Although by such a regulation a few individuals might possess higher unprofessional academical acquirements than at present, the total amount of university education possessed by medical practitioners would be lessened; and it would be insulting the common sense of our readers to adduce a single argument to prove, that by such a change the respectability of the profession would be lowered, not raised.

If no person were permitted to commence his professional study of medicine, who had not previously obtained the degree of A. M. or A. B. in an university, Edinburgh and Glasgow would be as little resorted to as schools of medicine by strangers as St Andrew's and Aberdeen. The professors would be deprived of an income, on the faith of enjoying which they had devoted their labour and time to the business of teaching, and had relinquished other means of gaining a livelihood; the reputation of the universities would decline, because that is connected with the number of students; and there would be a material diminution of the wealth of the cities in which they are seated.† All this would happen without any advantage whatever to the public. On the contrary, we are decidedly of opinion that it would be injurious to the general character of the profession, and to the best interests of the community; to the former by putting the professional academic degree out of the power of many, who would therefore remain content with an education much inferior to that which the degree now within their reach imposes on them; and to the latter by greatly diminishing over the country the number of well-educated practitioners.

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* See an excellent, but severe article, entitled, "*The Cambridge University,—Senate-House examinations for degrees*, in the London Magazine for March 1826, p. 302.

† The two great sources of the wealth of Edinburgh are the Courts of Justice

A. D. Jr.

(To be continued.)

ART. IV.—*Anno Clinico Medico, Compilato da Carlo Speranza già J. R. Medico Pròvinciale nel Regno Lombardo Veneto, ora Prof. di Terapia speciale et di clinica medica, &c.*—*Medico-Clinical Report for* 1823-1824. Compiled by Carlo Speranza, formerly Imperial-Royal Provincial Physician in the kingdom of Venetian Lombardy; now Professor of special Therapeutics and of Clinical Medicine in the Ducal University of Parma; consulting Physician of the Ducal court; and corresponding Member of the Medico-Chirurgical Academy of Naples. To which is annexed, *A Commentary on Tetanus.* Parma, from the Ducal Press, 1825.

FEW medical writings can be said to equal, and, perhaps none will be admitted to surpass in real practical utility, the volumes which the physicians of the hospitals and schools of the continent have published under the form of clinical reports, at different periods, during the last eighty years. The productions which issued from the school of Vienna, under the successive names of De Haen, Maximilian Stoll, and Ernest Hildenbrand, are not only durable monuments of the diligence and judgment of these observers, but are of the utmost importance to the physician, from the value of the facts which they communicate. The selections from the journals of the Copen-

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and the University. The members of the former, however, enjoy great immunities, which are highly oppressive on the other classes of the community; but the income derived in consequence of the flourishing state of the University and other seminaries of education is subject to no deduction. It may be calculated that the education to be obtained in the University brings annually to Edinburgh 1800 strangers, (students, and those accompanying them,) one half of them to study medicine; that they spend at least L. 50 each; which gives L. 90,000 left by the students every year, for which they carry nothing away but learning. Were this source of revenue to be abruptly checked, there is no class of citizens which would not suffer.

hagen Hospital, for the five years between 1782 and 1787, are not less creditable to the industry of Frederic Ludovic Bang, the judicious physician, of that institution. The writings of John Peter Frank, the clinical professor of Pavia, are so multifarious, that it is difficult to say what should be regarded as clinical reports, what as ordinary or occasional productions; but we are indebted to his son, Joseph Frank, for two short, but not uninteresting accounts of the practice in the Clinical Institutes of Pavia and Wilna, in which he taught successively. Nor must we forget the annals of the Clinical Establishment of Wurceburg, published in two volumes, by A. G. Thomann, which, though little known, contain a great variety of valuable information, and not a few instructive cases and dissections.

These works are so much more valuable, that they were the first of the kind, and mainly contributed to the origin and growth of that spirit of observation and research, for which the present race of continental physicians is distinguished. Though they are now eclipsed by some of the modern publications which the present day has seen issue, especially from the hospitals of Paris, yet they are still entitled to a high share of esteem and respect, at once from the happy spirit of faithful observation in which they are composed, and from the great proportion of useful information which the several hospitals were thus made to furnish, and which, without these early efforts, must have been utterly lost to the profession.

In laudable imitation of these illustrious models, Signor Carlo Speranza, professor of clinical medicine in the University of the Duchy of Parma, has published several annual reports of his practice in the clinical establishment of that city. One of these, published so early as 1822-1823, we have not seen, and consequently cannot speak of its merits. The one before us, which is for 1823-1824, and is the first that has come to hand, is a very favourable specimen of his industry and judgment, and well deserves the attention of the clinical student and practical physician. The manner in which Professor Speranza has selected and discussed his subjects, shows, that he is inferior to none of those who have preceded him in this train of professional exertion. With equal, or even more learning, and an intimate knowledge of the writings of all his predecessors, he is perfectly acquainted with the writings and opinions of most of his contemporaries. Professing himself a follower of the Hippocratic school, he is by no means unconscious of the value of systematic principles, and of the necessity of some regulating theory. Endowed with powers of observation and description of a very superior order, he is not, however, a mere collector of cases, but, like Stoll and Hildenbrand, surveys their combination and succession, and traces the circumstances concerned in their production with much judgment, ingenuity, and reflection. Though he has not utterly discarded the old symptomatic nosology of Sauvages and Cullen, yet he has shown himself at all times ready to listen to the views of the modern pathologists; and by his own necrological reports he has contributed, in no ordinary degree, to the establishment of sound principles, and the general advancement of accurate science.

The plan of the work may be stated in few words. Professor Speranza treats of the cases and diseases which have fallen under his observation, under the several heads of fevers, inflammations, diseases of the vascular system, diseases of the glandular-lymphatic system, diseases of the cutaneous system, and diseases of the encephalo-nervous system. In giving the details of individual cases, he first relates the circumstances and symptoms as they took place, then gives an account of the appearances after death, if fatal, and concludes the whole with a critical discussion *(epicrisis)* on the nature and pathological characters of the disease, as illustrated by a consideration of the symptoms during life, and the state of the parts after death. These critical inquiries, *(epicrisis)* the plan of which is borrowed from Stoll and Hildenbrand, and which are much of the nature of a clinical lecture, show thorough acquaintance with the subject, and will be studied with great interest and advantage.

It will easily be seen that it is inconsistent with our plan to enter into any detailed account of the contents of this report. To understand its merit, it must be often and deliberately consulted; and no review can communicate any just representation of the nature of its contents. With a general recommendation, therefore, to the studious reader, we shall merely select one or two of the most important and interesting topics for present notice.

FEVERS. *Intermittents.*—The clinical establishment of Parma presented during the course of 1823-24, 40 cases of fever, of which 14 were periodical or intermitting, 21 continuous, or continuous-remittent, and 5 of a character which Professor Speranza terms *irritative.*

Of the periodical 5 were simple tertians, 3 of which occurred during spring in an open situation, and two were autumnal, caught in a moist district. The vigour of the individuals attacked by the former, the absence of affection of the splanchnic organs, and symptoms of gastric irritation, more than of local congestion, suggested blood-letting and the evacuant system. In the autumnal ague, however, the Professor renounced blood-letting, and had immediate recourse to the emetic, administered after the manner of Sydenham, a few hours before the paroxysm, with advantageous result. The symptoms of fever continuing the same, the black pepper was employed without benefit; and under the use of bark and rhubarb the disease was finally cut short and did not recur.

Two cases of tertian caught in a moist situation, preceded by autumnal agues, occurred in two cachectic persons labouring under pellagra, and were maintained by a slow phlogosis of the liver and spleen. Under the use of purgatives, squill, calomel, and chalybeates, more or less continued, and subsequently combined with bark, or with sulphate of kina, the condition of the viscera was improved, and the fevers totally subsided.

Two tertians occurred in robust peasants with vascular orgasm in the chest and in the liver. In the former case pungent pain in the right side, difficulty in breathing, and lying on the affected side, and troublesome cough, without expectoration, indicated the existence of pleuritic tertian. In the second severe pain in the region of the liver, extending to the shoulder, with symptoms of gastric irritation, denoted the hepatic form of ague. With these symptoms they passed through several paroxysms, during which the symptoms in the hot stage attained such intensity, as to give the one case the appearance of pulmonic, and the other that of hepatic inflammation. The vascular turgescence was first removed by prompt blood-letting, and leeches applied to the chest and to the anus. The morbid state of the liver being then treated by suitable evacuants, especially calomel, recourse was had to the febrifuge remedy, by which at once the fever was cut short, and the local affection permanently removed.

A vernal tertian in a young robust peasant, accompanied with articular pains like acute rheumatism, was successfully treated much on the same plan.

Four quartans, 3 of which were autumnal and 1 vernal, but the consequence of previous tertian, occurred in the persons of 4 young but cachectic peasants living in a humid situation. The disease continued some time with a morbid state and slow phlogosis of the abdominal viscera. By means of the continued use of rhubarb, of gum ammoniac, of calomel, and of mercurial frictions on the affected parts, the morbid state of the viscera disappeared under advantageous evacuations from the bowels and from the urinary organs. The black pepper, though given repeatedly, and in large doses, having entirely failed, the fever yielded to bark and the sulphate of kina.

In all these agues Professor Speranza found it expedient to insist more or less on the administration of the febrifuge remedy, combined especially with rhubarb and with calomel, to prevent any relapse.

Professor Speranza takes considerable pains to show the fallacy of the opinions of Broussais and his followers on the pathological causes of fevers in general, and of agues in particular. The reflections of Professor Cappel and Professor Tomassini, on the insubsistence of periodic inflammations, of Gensana, on the fallacy of the principles of the physiologico-pathological doctrine of intermittents, of Fenoglio, on the incompatibility of periodical irritations, and the facts and observations of all ages, openly contradict, in his opinion, the maxims of the French reformer. He argues, on the contrary, that, from the disturbed motions which are excited in the splanchnic organs, from the overcharge of blood, from the distension or turgescence of the vessels, and from the derangement of the functions, we have, if not a certain, at least a very probable argument to refer to these organs, the pathological condition of periodical fevers, to the exclusion of the gastro-enteric canal. This idea, which he had formerly stated at large in his report for 1822-23, receives strong confirmation, he thinks, from the clinical observations of Lerminier and Andral. In the agues treated during 1823-24 in the clinical institute of Parma, so far as the inquiries of Professor Speranza extended, he always found the liver and spleen primarily affected to such extent, as to justify the idea of placing the pathological condition in these organs. It is not necessary, however, to suppose inflammation of the hepato-splenic system to account for similar fevers; since the smallest stimulus is known to be capable of producing congestion or vascular turgescence in an organ already disposed to such changes.

The same view at once applies to, and illustrates the nature of, the pernicious or malignant agues of authors, and the *febres comitatæ* of Mercatus, of Morton, and of Torti. Though in these there is not invariable proof of local inflammation, yet they always almost present traces of increased vascular orgasm, or that action which, by Hebenstreit, was denominated vital turgescence, *(turgor vitalis.)* This action, however, he admits, after the manner of his countryman Buffalini, may terminate in inflammation; and hence Borsieri *(Burserius)* saw the emetic or vomiting tertian end in inflammation of the stomach; Torti witnessed the sleepy tertian pass into true apoplexy; and Morton found the aguish colic give rise to intestinal inflammation. In such diseases, it is not the inflammation of this or of that organ which produces in the sense of Broussais the pernicious ague; but from the presence of turgescence during the febrile action, the physician has to dread, by reason of organization of the parts affected, inflammation and bloody effusion, precisely as happens in apoplectic, lethargic, tetanic, or other complicated agues. After adducing the authority of Burserius, of Frank, of Cappel, and Tomassini, in support of the same opinion, he opposes to the authority of Bailly that of Cayol, who, in his report on the diseases observed at La Charité in 1824, expressly asserts, from the facts of morbid anatomy, that, in pernicious agues we meet not with the genuine traces of inflammation, but only of bloody congestion, which may be regarded as the first degree of the incipient inflammatory process; and he infers, therefore, that the inflammation does not generate the pernicious ague, but that this may give rise to inflammation.

Professor Speranza is not less eager to show the weakness and insufficiency of the curative methods of Broussais, than he is to expose the fallacy of his pathological principles. He ridicules the substitution of a few leeches for general blood-letting, which he contends is demanded not only by the local affection, but to prevent consecutive nervous disorder, and subsequent inflammation. He commends the plan of Burserius, which was to abate inflammatory disposition previous to the use of febrifuge remedies; and upon the same ground gives the preference to the method of Professor Puccinotti, in which general blood-letting forms the first means of cure.

The extent to which the sulphate of kina is given in these diseases in Italy is so great, that no one not resident in the country can form a just idea either of the necessity or of the expediency of the large doses in which it is administered. M. Menard, from a few observations made in the environs of Florence and of Pisa, accuses of rashness those physicians who give the sulphate in doses of more than twelve grains to check the paroxysm in an adult, and asserts that eight grains only are sufficient. Speranza, on the contrary, contends that the experiments of *Marianini* in Tortona, of *P. Ramati* in Novara, of *Tonelli and Rossi* in the Roman territory, and his own researches in the Mantuan, are sufficient to refute the assertions of the French author, who even is further so inconsistent as to say, that he has given from twenty to twenty-four grains of the sulphate of kina, with favourable issue, and without bad effects, and even in one patient he carried the remedy in the course of seven days, to the enormous dose of 108 grains before the fever was cut short. Professor Speranza justly remarks, that it is quite irrational to determine the dose of any medicine to be the same in every situation in which the disease may prevail, and in every degree in which it may be observed; and admits, that the dose of any remedy for ague may be varied in different countries, and in different degrees and forms of the disease;

and neverthless, that all of these may be perfectly correct and necessary. He concludes his vindication of the practice of his countrymen with an assurance, that the assertion made by M. Menard, that the new sulphate of kina was unknown to the physicians of Florence and Pisa in 1821, is equally unfounded; that, at this very period, Professor Polidori was using it in his clinical establishment with the happiest success; that it had been already prepared by Fiorini; and that Passerini, a pharmacologist of Pisa, had at the same time furnished it in quantity to Professors Vacca and Comandoli, who obtained from its use equally advantageous results.

Continued fevers, Angiotenic.—Under this name Professor Speranza, after the manner of Pinel, comprises those forms of fever which, in the systems of Sauvages and Cullen are termed *synocha*, and which are thought to be distinguished simply by strong and well-marked affection of the vascular system. Most practitioners have doubted the existence of a fever so constituted, and have generally regarded it as a hypothetical assumption entirely, to suppose the existence of a fever without some local affection. The description before us tends rather to confirm than contradict this view. Of eighteen angiotenic fevers, thirteen consisted of direct affection of the vascular system, without presenting, so far as the researches of Professor Speranza went, any morbid state of any individual organ, *save phenomena of vascular irritation, which in all attacked the brain.* With the exception of one protracted to the 21st day, they went on to the 14th without affecting particularly any one organ. In spite of prompt blood-lettings, repeated according to their effects, aided by purgatives and abundant diluent liquors, the abatement of the symptoms was tardy, and the crisis late, but at length took place by perspiration and copious hypostatic urine. In the other five cases the brain or its membranes were smartly attacked, so as to produce the phenomena of *encephalitis*, with irritation propagated to the nervous system. By prompt general blood-letting and local discharges from the neck, temples, behind the ears, and from the anus; by the liberal administration of purgatives and antiphlogistic glysters; by the use of nitrous emetized draughts, and by the application both of cold washing and ice to the head; within the period of twenty-one days the morbid phenomena disappeared, and convalescence followed. The hopes of the Professor, however, were not realized in all the five. In two of the individuals the cerebral symptoms in a short time became aggravated; the vascular phlogosis spread in one to the spinal cord and the gastro-enteric system, and in the other to the lung, with subsequent cutaneous inflammation; and all the resources of art proved unavailing.

It is, perhaps, unnecessary to set about proving that, even by the account of the learned Professor himself, the first thirteen cases were continued fever, with rather less affection of the brain than the other five; and that they have, therefore, no better title to be received as examples of the pure nosological *synocha*, than any that have been yet adduced. In short, it may justly be admitted as a fair subject of inquiry, whether the instances which nosologists have referred to this genus do not differ from those referred to *Synochus* and *Typhus*, merely in degree rather than in kind, and whether it is not to the defect of accurate observation, rather than to the real absence of local symptoms, that we are to ascribe the alleged negation of local affection, by which this form of fever is supposed to be distinguished. The Professor, though aware of this objection, does not seem inclined to inquire into its merits.

It is different with the doctrine of continued fever, advanced by Broussais, against which he directs the whole force of his reasoning, and to the overthrow of which he labours with the most persevering assiduity. The hypothesis of this reformer, he contends, is contradicted by the fact, that all the textures and the capillary vessels are susceptible of producing fever, and really produce it by acting on the heart, but without necessarily attacking the mucous membranes. Nor does it avail to suppose that the irritation which may not be seated in the membranes in question, is always forced to act first on them, so as to put the heart in motion and develope fever; since, besides that this invariable succession of action is not demonstrated, it wants analogous proofs. The observations, for example, of Forestus, of Stoll, and of Frank, he maintains, prove that the phenomena of disturbed circulation precede those of irritation in the mucous surfaces. In patients also entrusted to his own care, Professor Speranza has often observed the fever begin with symptoms affecting the brain or the organs of circulation, and the symptoms of gastric irritation appear only when the disease was advanced; and he thence infers, that the simultaneous irritation of the heart and of the gastric mucous membranes is by no means necessary to the developement of *synocha* or angiotenic fever. The authority of Chomel is adduced to show that patients may die of these fevers without presenting the slightest alteration in the gastro-enteric canal. The dissections of Lerminier and Andral are quoted to the same effect; and the Professor refers to the case of a lamented friend, cut off by angiotenic fever, in whose body, though various morbid changes were found in the brain, yet the stomach and the small intestines presented no derangement whatever. For these reasons, although Professor Speranza will not deny that inflammatory fever may be seated, according to the principles of Broussais, in the gastric system, exactly as the ardent fever of Sauvages, the bilious of Sennert, or the gastric of Frank, yet he cannot so easily concede that simultaneous irritation or phlogosis of the heart and of the gastric mucous membrane is requisite to produce any synochal attack.

The theory recently proposed by Boisseau, that *synocha* may consist in the affection of a single organ, or, in more severe cases, of the whole sanguiferous system, is nothing but the revival of the ancient opinion of Forestus, who admitted in synocha a local affection, which increasing was propagated to the chest and to the head, so as to cause delirium, frenzy, and death. From a similar principle Selle, Stoll, Frank, and Pinel, deduced the simple and complicated form of synocha, for the last of which the modern school substituted the idea of *phlogistic diffusion*, to express more clearly the predominant character of the inflammation, which in *synocha* takes place through the medium of the vessels. After briefly criticising the erroneous views of Collineau, Gendrin, Dugés, and Berard, he at length comes to the conclusion, that though it is by no means easy, especially when the disease is mild, to determine precisely the part originally affected, or what he terms the morbid centre, yet it is impossible, after the observations of Frank, Reil, Pinel, and Tomassini, to exclude this form of fever from local affections entirely. Adopting the axiom of Zang, that *every febrile state is a symptom, or product of another disease, from which, as from a point, proceed the phenomena of general reaction, and thence fever*,—he does not, however, admit that it constitutes the essence of this disease, much less that it generates that process which peculiarly characterizes true inflammation. He remarks, nevertheless, that the establishment of new vascular and irritative motions may render the course of the principal disease more dangerous, to the injury, particularly, of the brain. He strengthens his reasoning by a somewhat lengthened and elaborate refutation of the notions entertained by Broussais on the phenomena of critical terminations.

Bilious Fevers.—The French physician sustains here a third attack from the impetuous and indefatigable Italian, who avows his attachment to the views given by Tissot, by Stoll, by Finke, and by Prost, that bilious fever is seated in the immediate organ of the secretion of bile, by reason of a stimulus or morbid action commenced in it. It may be doubted whether this opinion is more capable of being defended than those of Broussais; but we agree with Professor Speranza in thinking, that the Italian physicians are much safer in adhering to the invaluable lessons of the great masters of the art, than in following all the innovating generalizations of the physiologico-pathological school.

A case of *continued irritative fever, with palpitations of the heart,* gives occasion to some judicious remarks on that troublesome affection.

INFLAMMATIONS.—*Encephalitis tremefaciens or delirium tremens.*—That peculiar affection of the sensations, intellectual faculties, and muscular system, which generally results from the constant and immoderate use of spirituous liquors, Professor Speranza justly remarks, has been hitherto not well designated, and perhaps not thoroughly understood. The term *delirium tremens,* first applied by Saunders, and adopted by Sutton, by Armstrong, and others, is manifestly improper, in so much as the first or generic epithet is always used to signify a mere symptom, while the second, or *trivial* denomination, would lead to the mistake, that the complaint was invariably attended with tremulous motion of the muscles. Professor Speranza equally disapproves of the terms *œnomania* (οινος *vinum,* μανια *furor)* (Broussais) and *delirium ebriositatis.* (Black), as referring more to the causes than to the nature of the disorder; nor is he more indulgent to the names given by Leveillé, *(encephalopathia crapulosa),* and Hufeland *(dipnomania).* He gives the preference to the appellation *(encephalitis tremefaciens),* given by Professor Joseph Frank, as expressive at once of the seat, of the nature, and of the pathological condition of the disease, to which the tremulous motion of the hands is subordinate.

The discussion on the pathological nature, and proper nosological place of this complaint, though able and interesting, is lengthened, and does not easily admit of abridgement. The Professor here also assigns the palm of merit to Frank, to whom he says we owe the first accurate knowledge of the disease, derived from the combined lights of careful observation during life, and dissection after death. The authority of this physician, who found either inflammation of the organ *(encephalitis,)* or a kindred alteration, is confirmed by the testimony of Black, (Medical and Surgical Journal, Vol. xix.) who found coagulable lymph (serous exudation ?) between the *dura mater* and arachnoid, and much serum in the cavities, especially the lateral. Upon the strength of these facts, the Professor justly disapproves of the arrangement of Rayer, who considers *delirium tremens* as a *neurosis* of the brain, and of Black, who calls it a nervous disease. Impressed with the errors of the Brunonian pathology, he cautions his readers against the idea of nervous diseases being essential, and contends that they are most frequently symptomatic of a primary morbid condition. In the present instance, he argues from every thing that symptoms and pathological anatomy can communicate, that it must be inferred that the seat of this disease is in the brain and its membranes, and that its action consists in vascular phlogosis, with consequent nervous excitation.

The subsequent observations relate to the operation of the ordinary exciting causes; but as the Professor admits the justice of the remark of Rayer, that any attempt to explain this operation is very liable to lead into the field of hypothesis, our readers will, perhaps, forgive us for referring them to the report itself. It is sufficient to remark, that Professor Speranza, in saying that the action of alcoholic fluids on the encephalo-nervous system, manifests the greatest analogy with the vapour of charcoal, with wild darnel, *(Lolium temulentum,)* with the prickly mad-apple, *(Solanum furiosum,)* and with opium, does not give us a clearer idea than we previously had of the mode of operation.

Speranza disapproves of the method of treatment by stimulants and liberal doses of opium, pursued by Saunders, Sutton, and others in this country, and adopted on the continent by Rayer, Perrone, and Leveillé. He, on the contrary, approves of the plan of Frank, by general blood-letting, by local bleeding with leeches applied to the head, by cold applications, as ice or cold water to the scalp, and by the use of purgatives. In this mode of treatment, however, the Professor finds he is not solitary. Pinel has treated with favourable result persons deranged by habitual intoxication, by the simple antiphlogistic means, without ever employing opium; and some recent observations show that Esquirol in Paris, and Hope and Thomson in Edinburgh, have employed blood-letting and low diet with the happiest success.

Acute Encephalitis supervening to Chronic Inflammation of the Brain.—A case of this disease gives rise to some excellent observations on the comparative frequency of acute and chronic inflammation of the brain. From the numerous cases recorded by authors, in which purulent collections found after death were not preceded by symptoms during life, he is inclined to think that this organ is more frequently the seat of chronic than of acute inflammation; and he entertains the same opinion of the cases in which purulent discharge from the ears had long subsisted, and in which, after death, more or less of the brain or cerebellum was converted into purulent matter. (MORENHEIM, DUNCAN, JANUS PLANCUS, STOLL, and BRODIE.) It is not the least remarkable, though a very constant fact, of these slow and tedious suppurations, that the morbid process is not confined to the brain, but extends outwards, often through the hardest part of the temporal bone, by the destruction of which it finds an exit through the external auditory canal. This had actually taken place in the patient whose case is described by Professor Speranza.

The author also infers, from the cases recorded by writers on pathological anatomy (FORESTUS, BONNETUS, MORGAGNI, ALBERTI, NEBEL, &c.) that abscesses of the brain are most commonly the consequence of external injuries, and that, when they are the result of internal causes, they are the effect of a metastatic action. But whether this *metastasis* is an actual transfer of matter, as was imagined by the older physicians, and the pathologists of the humoral theory, or is to be viewed as a simple transfer of morbid action, as maintained by Sprengel and others, he does not positively determine. In support of the general truth of the above opinion, that these affections, when not preceded by external injury, result from metastasis, whatever pathological signification is attached to this term, he adduces not only the phenomena of rose, herpetic eruptions, and the healing of sores on the extremities, but more especially the phenomena of small-pox, which, previously to the discovery of Jenner, very often left abscesses of the forehead, purulent discharges from the ears, blindness, abscesses of the articulations, of the salivary and cervical glands, chronic affections of the chest and belly, caries of the bones, &c. Such suppurations, which have been considered as so many metastatic actions, are the result of a slow inflammatory process, developed in the course of the disease, and corresponding to the latent inflammations of WEINHOLT and HERTZ.

It would not be difficult to show, that though the idea of an actual transport of matter is supported by a few rare facts, yet the opposite one of a transference of morbid action is much more general, and more consistent with the usual operations of the animal body. But this is not all; nor is the mere hypothesis of metastatic action sufficient to explain the phenomena of many of these consecutive diseases, especially inflammation and suppurative process, in very different textures and organs. In a great proportion of instances in which such consecutive effects take place, they are the result, not of a transfer, but of an extended and simultaneous form of the original morbid process. Thus, in small-pox, it is the great severity of the inflammation, and its extension to the mucous and fibro-mucous surfaces, that causes the affections of the bones of the head, of the nose, of the eyes, and the diseases of the internal ear; it is the same agent which induces the affections of the throat and lungs, by extending to the tracheal and bronchial membranes; and it is the same action, which, by extending to the gastro-enteric mucous membrane, causes the intestinal affections, sometimes observed to follow small-pox. In like manner, the inflammatory action of measles, which is known to affect the lungs, may produce a real bronchial inflammation, and terminate in bronchial suppuration, with all the symptoms of genuine consumption; or if it spare life at this time, it may lay the foundation of hepatized or tuberculated lungs, which, in proper season, commence their usual process, and eventually terminate fatally. Nor is it different with scarlet fever, which very generally, by extending from the throat, along the eustachian tube, into the tympanal cavity, produces permanent and incurable deafness, with puriform discharge from the ear.

We pass over several good cases, for which, however, we have not room, to the report on inflammation of the lungs.

Of this the Professor had occasion to treat not fewer than 48 cases, all of acute inflammatory nature, and rapid in progress. It is not unworthy of notice, that the most of these presented at first a mild and gentle appearance; but in a few days the symptoms became unusually severe, the expectoration was suppressed, the pain disappeared, and, cerebral symptoms coming on, the disease was developed in all its violence, in spite of the employment of remedial methods. Like the pulmonic inflammations of Vienna in 1780, described by Stoll as acute, of bad character and unmanageable, those in the clinical establishment of Parma are stated to have been violent, obstinate, and affecting at the same time the organs contained in the different cavities. Many of them displayed a rheumatic complication, indicated by wandering pains in the articulations, under which the situation of the patients became more severe and formidable. Indeed, in confirmation of the observations of PENADA made in rheumatic peripneumonies, the Professor found the anterior part of the lungs and the bronchial glands all covered with lymph or bloody jelly, from which he infers an inflammatory process, more complicated and more exquisite than that which causes serous exudations. In others, convulsions, coma, and delirium, indicated affection of the brain, as, from palpitations, and irregular motions of the heart, he concluded that the inflammatory action was diffused to the precordial organs. The prevalence of nausea, vomiting of acid, bitter, bilious matter, with oppression and pain in the region of the stomach in all, he ascribed to irritation of the gastric mucous membrane, rather than to indigested accumulations. In some the evacuation of worms, with intestinal pains or spasms, formed an accidental complication, which might at other periods have led to the notion of *verminous* peripneumonies. In many severe pain, and tension in the right hypochondre, extending to the shoulder, with precordial anxiety, bitterness of the mouth, tongue rather yellow than foul, conformable expectoration, vomiting, pungent heat of the skin, intense thirst, general uneasiness, yellowish tint in the eyes and skin, pulse rather quick and frequent than hard, denoted affection of the liver, and called for treatment as pneumono-hepatic inflammations, like the bilious peripneumonies of Tissot and of Stoll. In this course, several peripneumonies proceeded for many days, notwithstanding the use of the general and local resources of art; not a few were protracted beyond the 20th and 30th days; and some presented apparent phenomena of suppuration, yet terminated afterwards in favourable resolution.

It is rather gratifying to observe the present author practising in a country where the treatment of pneumonic inflammation is conducted, or supposed to be conducted, on what is termed the contra-stimulant plan, scarcely mentioning this, and adhering to the antiphlogistic method with the same rigour and with the same neglect of hypothesis as if he were a British hospital physician. General blood-letting constituted his principal remedy; and local blood-letting was not neglected under proper circumstances. To prove more evidently his energy in this respect, he informs us, that, however violent and obstinate the disease was, however complicated with affection of other organs, and especially the liver, and however robust the constitution of the individual might be, he rarely exceeded the eighth, and in one case only the ninth, blood-letting. He was led to this mode of limiting the extent of the application of this powerful remedy, by an idea which has long been prevalent among the physicians of the Transalpine peninsula, and for which we believe there is some foundation, that pneumonic inflammation, as it appears in Italy, has a necessary duration, a regular course of gradual increase and similar decline, which renders it impracticable to cut it short by the antiphlogistic method, however bold and energetic. Though blood-letting, practised with spirit and discretion early in the disease, may often moderate the symptoms, and sometimes cut it short, yet its effect in the latter stages is only to suppress expectoration, and hence to produce a mortal oppression of the organs of respiration. In support of the accuracy of this observation, he refers to the authority of Morgagni, of Fouquet in his "observations" in 1797, of Borda in his medical topography of the territory of Pavia, and others.

Though the Professor was thus disposed to set bounds to the use of the lancet, and would not trust the treatment solely to it, he is very anxious to show that he was cautious and circumscribed in the employment of those remedies to which his countrymen ascribed contra-stimulant or depressing effects, and still less disposed to trust to these only, and to carry them to the large doses usually recommended. He, in short, seems inclined to give his countrymen very little merit indeed for their employment of their great specific, the tartar emetic; and he at once strips Rasori of all his celebrity for originality, by showing that, notwithstanding the attempts to ascribe to the physicians of these latter days the practice of administering in inflammations of the chest large doses of tartar emetic with advantage, and without producing vomiting, yet this was done in the same complaints, and to the same extent forty years ago, in Gottingen, by BRENDEL, SCHRODER and RICHTER. He acknowledges, however, that, in his own practice, he never exceeded eight or ten grains daily, dissolved in a large proportion of water, which, though useful in severe peripneumonies, was not followed by vomiting or any of the bad effects dreaded by Broussais and his followers. He does not adopt the idea that the endurance *(la toleranza)* of the remedy is to be regarded as a proof of the hypersthenic force of the disease, and indicating repetition of blood-letting. To determine this, he had recourse to the other diagnostic means. But the *endurance* of the remedy indicates, according to his observation, the organ which maintains more direct communication with the diseased part, and tends to act upon this organ, not always with remedies proper to inflammation, but indirectly, that is, by counter-irritation.

Foxglove he has little employed, from an idea, that, as in a small dose it produces nausea and vomiting, and in larger quantity acts on the brain, it may cause bloody congestions, which are injurious in pulmonic inflammation. He is equally sceptical in regard to the sanative powers of the laurel-water, and the hydrocyanic acid.

In the management of bilious or gastro-hepatic complication of the disease, he bestows the highest encomiums on the use of kermes mineral, which he prefers to all antimonial remedies whatever, and which he employed along with and after-blood-letting. This antimonial was originally recommended by Boerhaave, as singularly beneficial, without causing either anxiety, squeamishness, or vomiting; and this character was afterwards confirmed by the experience of De Haen, of Huxham, and of Stoll. In imitation of these practitioners, Professor Speranza along with, or after the use of blood-lettings, employed the kermes in a quantity proportioned to the stage and intensity of the disease, but never in the most severe case exceeding the allowance of from twelve to fifteen grains in the period of twenty-four hours; and this quantity was diminished as the dissipation of the local and general phlogistic state indicated the approach of resolution. Mindful, however, of the precepts of Baglivi, who recommends attention to the urinary secretion during pulmonic affections, he conjoined it with squill, under the use of which an abundant flow of urine was attended with great benefit.

A case of pneumonic inflammation terminating in gangrene of the lungs, gives rise to a learned and intelligent commentary on that affection, and on the causes on which it is believed to depend. On this latter point, however, his opinions are not satisfactory. Three cases of inflammation of the heart or pericardium, the third of which is given at large, are followed by some good remarks, in which the merits of Burns, of Kreysig, of Wells, and of Odier, come successively under review.

Of a fatal case of pericarditis with suppuration of the pericardium, and abscess of the substance of the heart, the dissection is said to be the most interesting and curious of that clinical course. The pericardium, much thickened, was everywhere attached to the heart so firmly, that it could not be separated without laceration, and verified the ancient but erroneous notion of *hearts without pericardium.* An immense mass of adhesions, suppurations, and abscesses, discharging purulent matter, covered the surface of the membrane. The heart was much enlarged. In the muscular substance of the left ventricle was an abscess which might contain a pigeon's egg full of purulent matter; the interior of the ventricle contained various albuminous concretions; and the left auricle contained several excrescences, some of which were cartilaginous. This case had been complicated and obscure; more especially from the absence of symptoms denoting affection of the pericardium. But perhaps it must be admitted to be an example of *pericarditis,* terminating in inflammation of the substance of the heart,—a point much doubted by Laennec.

Though all the cases detailed by Professor Speranza have some striking peculiarities which render them highly instructive, he appears himself to have taken peculiar interest in the fate of the following:

> "A year ago Marianna Giraschi, seventeen years of age, of delicate constitution, of no contemptible figure, and worthy of a better fate, residing in a mountainous district, *mensibus nondum defluxis,* when passing a river on a faithless and insecure plank, unhappily fell into the waters, where she must have perished, but for the prompt assistance of a humane arm. In so alarming a shock the central organ of circulation first participated, giving rise to violent palpitation, which, increasing in degree and force, became in the course of two months most distressing and insupportable. In this state she was received into the clinical institution, after bearing a long and inconvenient journey, which could not fail to aggravate all the evils of her situation. The unfortunate girl now presented a dismal spectacle. Not palpitation merely, but violent beating of the heart was manifest at first sight, and very remarka-

ble even at a distance, with pain more obtuse than acute below the left breast, and which was occasionally converted into violent trembling. The carotid arteries throbbed strongly, and were accompanied with corresponding pain of the head; the blood-vessels of the abdomen beat with unusual violence; and the arterial pulse was frequent, small, irregular, and intermittent. The respiration, which was laboured, became hurried on the slightest motion, with incessant troublesome dry cough. Oppression at the breast was uninterrupted, and faintings were frequent. Her nights were sleepless, or disturbed by unexpected agitation. The difficulty of lying on the side and back was so urgent that the dread of suffocation was constant, especially during night. The lunar periods had never taken place; but there was no morbid symptom of the genital organs. The countenance was pale; the expression sad and anxious; the eyes languid and hollow; and the emaciation considerable. From this affecting sight we could not but suspect slow inflammation of the pericardium or of the heart, not without fear of organic change in this or in the large vessels. But the disease was too far advanced, and the symptoms were too formidable not to dread an unfavourable issue at no remote period. Indeed, after trying without avail small and repeated bleedings, the application of leeches to the breast, to the arms, and to the external parts of generation, the use of foxglove, of hemlock-extract, of cherry-laurel water, and whatever art could suggest, the patient closed her eyes in eternal sleep, after scarcely four day's continuance in the clinical establishment.

" Dissection disappointed all our expectations. No alteration appeared in the heart, or the pericardium, or in the great vessels; the texture of the left ventricle only was thicker and firmer than natural; the vessels arising from it were small in proportion; the lungs and the brain were gorged with blood; and the vascular system of the womb, ovaries and ligaments, was much swelled and distended with accumulated blood."

This case leads to a learned and profound inquiry into the influence of strong mental emotions in producing disease of the heart and great vessels, and the question whether they produce mere nervous or functional disorder without organic change, or functional disorder with organic change. After various considerations, Professor Speranza comes to the conclusion, that the derangement of action in the present case is not to be ascribed entirely to the influence of the nervous system, but that, considering the morbid phenomena during life, and the effects after death, the increased volume of the ventricle, and disproportion between the ventricles and the large vessels, were the consequence of slow carditis, or chronic inflammation of the substance of the heart.

Of inflammation of the diaphragm, the Clinical Institute of Parma presented two examples, both of which are given at length. The principal object of the author in his critical commentary, is to refute the notion of the ancient physicians, that inflammation of this muscle is necessarily connected with those proofs of deranged intellect which were denominated *paraphrenesis*, and that wounds of it are followed by the tetanic symptoms termed *risus sardonicus*. Thus, in a man mentioned by De Haen, cut off by violent pleurisy, the muscular and tendinous part of the diaphragm was inflamed, without causing either vomiting, delirium, *risus sardonicus*, or convulsions; and similar cases are related by Willis, and in the Acts of the Medical Society of Copenhagen; and conversely, cases have occurred in which furious delirium, violent hypochondriac pain, singultus, and *risus sardonicus*, preceded death, yet in which the diaphragm was free from disease. The infinite observations made by the military surgeons also during the last war prove that the diaphragm may be injured without affection of the brain.

A fatal case of *enteritis, with iliac passion*, gives rise to a long, elaborate, and very judicious inquiry into the nature, causes, and best treatment of that disease. The general result, from the examination of an immense number of authorities, and comparison of them with the observation of the author, is, that all the symptoms and all the effects observed in the bodies of those cut off by iliac passion, not even excepting the invagination of the intestines, are the consequence of inflammation of the small intestines,—adopting in this respect the opinions of Simson and Vogel, who considered invagination as not the cause but the consequence of inflammation. Admitting this to be correct, he proceeds to consider a very natural objection, why every case of inflammation is not attended with iliac passion, or those symptoms of incessant and complete inversion of the peristaltic motion, viz. fecal vomiting. On this point, however, he does not come to any very positive conclusions; and, admitting that the pathological relations of the ilio-cœcal valve, to the forcing or palsy of which this inversion has been ascribed, have not yet been thoroughly investigated, he leaves the matter very nearly in the same state in which he found it. It is impossible here to enter into any disquisition on the functions of this valve, or the influence which it may exert in insuring and maintaining the steady peristaltic motion of the intestines; but various facts might be adduced to show, that if it has any influence of this kind, that influence is neither great nor constant. The phenomena of strangulated hernia are, above all, of more importance in explaining the nature of iliac passion than mere physicians seem inclined to admit.

In conformity with his view of the pathological character of this disease, Professor Speranza recommends the prompt and energetic use of every part of the antiphlogistic regimen. He persevered courageously, he informs us, in blood-letting, general and local, often repeated, notwithstanding the severity of the pain, the state of the pulse, the oppression of the strength, and the apparent complexity of the nervous symptoms, which seemed to contraindicate its employment. On the effect of purgatives he is more cautious in stating his opinion; since there are circumstances which admit, and circumstances which exclude, their use. Of clysters, however, he has less doubt. In opium, though recommended from the time of Hoffmann to that of Dr Abercrombie, he has little confidence, or rather he thinks it injurious; and where a sedative is requisite, he gives the preference to extract of henbane. The administration of metallic quicksilver claims a little more attention; but, as it was introduced chiefly by the anxiety to check the symptom of fecal vomiting, he does not hesitate in viewing it as a remedy rather of probable than certain effects. He therefore comes to the conclusion, that it is to be tried chiefly in desperate cases, in which the physician ought to employ every possible means for attempting the recovery of the patient. He however takes care to remind the reader, that in a part already inflamed it can only accelerate the transition to gangrene; and in some cases of obstinate stricture and complete invagination, its violent pressure against an insurmountable barrier will only render the fatal termination more speedy. Upon the same ground he declares himself against the use of balls of gold, of silver, or of lead, in attempting the removal of this malady.

Of warm baths he speaks more favourably; but from cold baths, and ice applied to the belly, he has obtained no favourable result. Nor is he more indulgent to the injection of air or water into the bowels, the utility of which, he contends, he cannot perceive in violent intestinal inflammation, invagination, and approaching fatal gangrene. The operation of gastrotomy in this disease he regards as not only impracticable but inexpedient.

The Report presents several examples of peritoneal inflammation, with various complications and varieties. A case of inflammation of the womb, followed by inflammation of the peritoneum, pleura, and pericardium, with watery effusion into the cavities of these membranes, with dissection; a case of inflammation of the urinary bladder, and some others of less note, conclude this division of the Report.

The subsequent parts consist of matters of less general interest; and as those already treated are sufficient to communicate some idea of the general nature and merits of the work of Professor Speranza, we shall limit our further duty to a general but warm recommendation of it to the attention of all those readers who take interest in pathological and practical information. The clearness, neatness, and general elegance of the language of Professor Speranza, are sufficient to recommend the work to the reader of taste; while the great and extensive erudition, the sound sense, and professional zeal of the author, demonstrate how completely he is qualified to be a safe and useful instructor.

To the commentary on Tetanus, which closes the volume, we may perhaps take some future opportunity of requesting the attention of our readers.

ART. V.—*Von der Heilung des falschen Gelenkes, &c. On the treatment of Preternatural Joint, Spina Ventosa, and Overgrowth of the Callus of Fractures, by the Seton.* By Dr C. A. WEINHOLD, Professor of Clinical Surgery at the University of Halle, &c, &c. (*Journal der Practischen Heilkunde, Mai* 1826.)

OF the various plans which have been hitherto proposed for the treatment of preternatural or False joints, the method by excision of the broken ends of the bone, and that by irritation with the seton, are alone held in estimation by surgeons. It is important, therefore, to determine which of the two methods deserves the preference, as being the safer, and as affording the better chance of success. The treatment by excision, originally proposed and practised by White, has the advantage of being much quicker in its effect than that by the seton. But it is commenced by a much more formidable operation; it is very apt to be followed by diffuse cellular inflammation; and although several striking cures have certainly been accomplished, it appears on the whole, from the observations collected by Mr Samuel Cooper, to be very uncertain in its effect. The treatment by the seton, which was first proposed and successfully practised by Dr Physic of New York, is more tedious than the former; but it is milder and not so apt to excite violent inflammation, and the few cases hitherto published in illustration of its efficacy, show that, although far from being infallible, it is probably more certain than any other method of cure.

The essay of Professor Weinhold is valuable, not only by adding the testimony of a highly qualified witness in its favour, but likewise by extending its employment to the reduction and removal of callus generally, and by pointing out some niceties of consequence in the mode of applying it The cases in which he has used it are six in number, four of preternatural joint, one of spina ventosa, and one of preternatural growth of callus, subsequent to a mismanaged fracture. In all of them he was successful, except in one of the cases of preternatural joint, the joint having been in the neck of the thigh bone, and matter having collected in the capsule before the operation. The peculiarities of his operation consist in the use of a drill of his own inventing, by which the seton is drawn right through the joint or callus, and in the employment of a conical or cuneiform seton, by which greater irritation is maintained than by the ordinary seton, while the entrance of air by the external wound is always prevented to a certainty.

We shall first relate the particulars of its effects in a case of the preternatural growth of callus. This was occasioned by the master of the patient insisting on his returning to his work too soon after he received a fracture of the left thigh bone. The soft callus in consequence yielded, the broken ends overlapped each other two inches, and the man having continued to work for ten weeks, the swelling increased to the size of a new-born child's head, and made him totally lame. When Professor Weinhold first saw him, the callosity of the tumour appeared to be about 18½ inches in circumference; the whole limb was swelled by the effusion of lymph into the cellular tissue; and both near the knee and above the tumour there were several inflamed spots, which afterwards suppurated, opened, and formed fistulous sores. He first resolved to attempt extension of the callus; but after eight days' trial, he found it had not yielded so much as a single line. On perusing the cases of the same description to be found in various authors, he was unable, he says, to discover any instance of such a tumour having been resolved. Left to his own judgment, therefore, he determined to avail himself of the method proposed by Dr Physic for reuniting the ends of unconsolidated fractures. Accordingly, with his own trephine-needle, he pierced the soft parts of the thigh without a previous incision, and then applying the drill bow-string, proceeded to pierce the callus. After penetrating the bony mass for a minute, the instrument suddenly plunged through a cavity four inches in diameter. Another osseous plate was then drilled through, and the instrument, with a seton thread attached, was pushed through the integuments opposite, and drawn out. After the operation the limb was kept cool for three days, and the patient enjoined to observe a state of perfect repose. In the fifth week, the hardening of the cellular tissue and effusion of lymph around the callus had dissolved away, and suppurated off through two fistulous openings. In the sixth week the patient complained of acute pain in the part, and the limb became warm. These symptoms, however, were removed by renewing the cold fomentations. In the seventh week proper pus flowed from both openings of the seton, and continued strong pressure on the callus caused a distinct depression. The apparatus for extending the limb was therefore had recourse to, and with such success, that in the tenth week the limb was only two lines shorter than the other. For the sake of security, however, the seton was allowed to remain till the twelfth week. It was then removed; and the openings, as well as the fistulous canals, which had been previously converted by an incision into one wound, were healed up. The callus after that shrunk rapidly, the patient soon walked about without crutches, and ere long was discharged thoroughly cured, and with the injured bone scarcely any larger than the healthy one.

In reflecting on the mode in which the treatment by the seton operates in the case of False joints, and on the probable causes of its imperfect success, in the instance recorded by Mr Wardrop in the Medico-Chirurgical Transactions, and in that described by Mr Hutchison in his Practical Observations in surgery, Professor Weinhold was led to believe that the ordinary seton-thread on the one hand excited too little reaction, and on the other promoted the tendency to caries, by admitting the external air to the bone. He therefore proposed to employ a conical or cuneiform seton, as described in a treatise published at Halle in 1822, and entitled "*De articulatione spuria, et nova eam curandi methodo.*" This work we have not been able to see, but the cases detailed in the author's present essay leave no doubt, that, whatever justice there may be in the reasons he assigns for the failure of Mr Wardrop and Mr Hutchison, his own method has been attended with remarkable success.

The first he has related occurred in the person of a coachman, who fractured the left leg near the ankle. In consequence of his moving the limb during the treatment, a perfect false joint was formed at the end of eight weeks, and a large quantity of matter collected in the calf. Having resolved to treat the case by the seton, Professor Weinhold made an incision an inch and a half above the outer ankle, formed a funnel-shaped canal down to the preternatural joint, and piercing it with the trephine-needle, drew the seton through it. The operation, which hardly lasted three minutes, was followed by a discharge of ichorous matter, which increased when the calf was gently pressed, and consequently showed that the preternatural joint and the abscess in the calf were connected together. A hectic fever too had commenced. Such being the state of matters, it is not to be wondered at that Professor Weinhold formed an unfavourable prognosis. A free opening was then made into the abscess in the calf; but the case afterwards looked even more unpromising; a colliquative suppuration was established, and every surgeon who saw the patient advised immediate amputation as the only resource for saving his life. Our author, however, persevered; the patient's strength was supported by the liberal use of bark; in the thirteenth week the suppuration was checked, and the state of the limb was otherwise so much improved that the foot could be moved on the ankle-joint; and ere long the cure was so thoroughly complete as not to leave behind even any stiffness of that joint.

The second case of artificial joint was one of ten years' standing. The patient sustained a fracture of the thigh when he was ten years old; and, in consequence of his not being long enough kept at rest, the fracture did not unite. Eight years afterwards, he resolved to quit his employment as a cow-herd, and to apply himself to some more profitable work. But the result was, that the false joint became inflamed, and subsequently carious; and two fistulous communications were formed between the integuments and the diseased bones on the posterior part of the thigh. Professor Weinhold joined the fistulæ by an incision; and, introducing the needle-trephine, transfixed the joint in the usual manner, and drew a conical seton through it. The patient being in an irritable state from the previous fever and the inflammation in the artificial joint, the reaction, by which the quality of the discharge becomes improved, occurred so early as the fourth week, and several portions of carious bone were thrown off betwixt that and the sixth week. In the eleventh week the bone appeared in so healthy a state as to admit of the application of the splints; and compressing bandages were employed to promote the absorption of the effused lymph. In the twelfth week the artificial joint would no longer bend, and the carious odour had disappeared. The seton was therefore gradually diminished in size. In the thirteenth week the patient was allowed to walk, and on the sixteenth he was dismissed completely cured.

The third case is a mere notice of a successful cure in the instance of an hostler, who had a false joint in the thigh-bone.

The fourth was an unsuccessful attempt to heal by the same treatment an artificial joint in the neck of the thigh-bone. The author conceives that this might have been equally successful with the three former, if there had not been a previous suppuration in the acetabulum and pelvis. The subject was a groom, forty years old, who was thrown from his horse, and struck the right hip against a sharp stone. The injury was treated at first as a mere bruise; but when Professor Weinhold saw him three months afterwards, he at once recognized an un-

united fracture of the neck of the thigh-bone. He was unwilling to try any operation, as the symptoms clearly indicated chronic inflammation, if not actual suppuration of the hip-joint. The patient, however, had heard of Weinhold's cures, and determined to take his chance. The right hip being brought over the edge of a table, an incision was made down to the joint, midway between the great trochanter and outer edge of the acetabulum. A semicircular seven-inch seton-needle was then thrust through the false joint, and pushed through behind the great trochanter in such a way as to keep clear of the sciatic nerve. The operation did not cause much pain, but an ill-conditioned ichor issued from the anterior opening. Hectic fever supervened, and the patient died in six weeks. On dissection, the cartilage of the acetabulum was found destroyed by caries, and pus collected in the pelvis. In relating this case the author has not stated distinctly whether the fracture and false joint were within the capsular ligament, or whether he would advise the operation in such circumstances. According to the most prevalent opinion among surgeons it would be unavailing.

The last section of the paper is confined to a single case on the application of the seton to the treatment of Spina Ventosa. A lad, nineteen years of age, had a bony tumour on the left thigh nine inches in circumference, and besides, there had been for a year before several sinuses opening in the ham. Amputation had been proposed, but the patient preferred to take the chance of a cure by Weinhold's method. The sinuses were therefore all united by incisions, and the tumour was then pierced by the needle-trephine, with the aid of a drill-bow, and the conical seton drawn through it. Cold applications were used for three days to moderate the reaction. In three weeks a healthy suppuration was established. The tumour swelled at first, and became painful in the night-time; but Weinhold had been accustomed by past experience to look on these symptoms as a favourable omen. Accordingly, as soon as the seton was removed, which was done in the course of the thirteenth week, both openings healed up; the bony tumour shrunk to one-third of its former dimensions, so that the bone appeared to be scarcely enlarged at the spot at all, and the patient soon returned to his work.

ART. VI.—*Recherches Anatomico-Pathologiques sur la Phthisie, Par P. Ch. A. Louis.* A Paris, Chez Gabon et Compagnie, Lib. 1825. *Anatomico-Pathological Researches on Consumption.* By P. Ch. A. Louis, M. D. &c. &c. Preceded by the Report made to the Royal Academy of Medicine by MM. Bourdois, Royer-Collard and Chomel. Paris, 1825.—pp. 560, 8vo.

NO one will expect that any treatise on consumption, after the elaborate researches of the late lamented M. Laennec, should either contain much original matter, or add materially to the stock of knowledge already accumulated. Every thing pertaining to the pathological nature, either of genuine tubercular consumption, or of the kindred affections reputed consumptive, was investigated with such persevering diligence, and minute accuracy, by that indefatigable and ingenious observer, that the anatomical history of the disease, as completed by his hand, seemed entirely exhausted. No point worthy of attention seemed to have escaped notice; none that was noticed appeared to be left unexamined; and to the future observer seemed to be bequeathed the task rather of verifying and confirming the conclusions already announced, than of increasing their number by any thing new or unknown.

These suppositions are, doubtless, perfectly natural; but that they are not correct, the volume now before us furnishes the most ample and incontestible proof. Though the researches of M. Louis necessarily tend to confirm the general accuracy of the results obtained by M. Laennec, yet he has also made very considerable additions to the anatomical history and pathological knowledge of pulmonary consumption in its different degrees and stages of progress. The great object of his work is, indeed, to explain the anatomico-pathological history of consumption, and to trace, by accurate dissection at different periods of the disease, the morbid changes which successively take place, not in the lungs alone, nor in their immediate appendages, but in the different textures and organs of the body. An idea, rather vague and unsupported by accurate proof, has at different times prevailed, that the action of phthisis, though originating, and chiefly manifested in the organs of respiration, is not, however, confined to them, but may appear simultaneously or progressively in other parts, especially in the alimentary canal. Receiving this notion, not as downrightly erroneous, but as requiring more positive confirmation than has yet been adduced, M. Louis has subjected it to the strictest of tests; and by showing how far it may be said to be well-founded, and giving it a very high degree of precision, he has rendered it worthy of the serious attention of physicians. Without entering on the ordinary and generally known points of the history of pulmonary consumption, we shall confine ourselves at present chiefly to a statement of the most important results, obtained by the research of M. Louis. These results, it may be premised, are derived from the accurate examination of 123 fatal cases of phthisis, fifty of which are described in the course of the volume, to illustrate various points in the symptomatic or pathological history of the disease.

Lungs and Pleura. Tubercles have been long admitted to be the essential and constituent anatomical character of genuine pulmonary consumption. They affect particularly the upper region, or summit of the lungs, in which they are larger, more advanced, and proportionally more numerous than in the rest of these organs. Even the whole upper lobe may be converted into excavations, and grey or tubercular matter, impermeable to air throughout; while a part more or less considerable of the lower is capable of respiration, and seldom presents tubercular cavities. Such, nearly, was the state of the lungs in 38 cases, about the third part of the whole number, of whom 28 were seated in the left lung, and 10 only in the right;—a proportion which seems to denote a greater susceptibility in the left than in the right lung. It is not uninteresting to remark, that the same conclusion is favoured by the locality of perforation of the pulmonic tissue, in which, of 8 cases that were recognized, 7 were found on the left side.

The period for the complete softening of tubercles varied in different subjects. M. Louis never met with tubercular excavations entirely empty before the end of the third, or the beginning of the fourth month; when the walls of these cavities were generally soft, and covered by a slender false membrane, which was easily removed. When the softening process occupied a longer time, their walls were almost invariably more or less firm, formed by tubercles, by grey semitransparent matter, and sometimes by melanotic matter; and the lining membrane was firm, greyish, semitransparent, semicartilaginous, from $\frac{1}{3}$ to $\frac{1}{4}$ of a line thick, and covered by another softer membrane of a whitish or yellowish colour. In the $\frac{1}{4}$ part of the cases neither of these membranes was found; and the pulmonic tissue, more or less deeply changed, was quite uncovered.

The excavations varied in size. The smallest were about the size of a small nut; the moderate were between that and the bulk of a rennet; those of the volume of a goose egg, of the fist of the subject or more, were regarded as large. These large cavities were found on the right or on the left in one half of the cases nearly; in the same proportion on either side; but while they were very common in the upper, nearer the posterior than the anterior margin of the lung, it is remarkable that in no case were they found in the centre of the lower lobe. Though in the greater number of cases excavations were found in both lungs, that was not constant. In one-sixth of the cases they were found on either side; and when they were on both sides, their size was different. In one-tenth of the subjects they were equally large on both sides; and in another tenth, their dimensions, middle and small, were the same on the right and on the left.

In no case did M. Louis find, amidst *sound* pulmonic tissue, cavities communicating with the *bronchi*, and lined, like old tubercular excavations, by the grey semi-cartilaginous and imperfectly opaque false membrane. He does not, however, deny the conclusion deduced by M. Laennec, from the aspect of these cavities, and the symptoms manifested by these subjects. Nor has M. Louis found, at the summit of the lungs, those masses of firm cellular tissue, penetrated by bronchial tubes, more or less dilated, and which M. Laennec considers as cicatrices of tubercular excavations. These hard depressions, M. Louis thinks, correspond to no determinate lesion. In no case were bronchial ramifications found in the interior of tubercular cavities, or in masses of semi-transparent grey matter,—which confirms the observation of Laennec, that the first effect of the developement of this matter is to destroy the bronchial tubes where it takes place. But as direct transformation could never be traced, M. Louis concludes that this process is effected by absorption.

Inflammation of the pulmonic tissue was not uncommon. It was seen in the second degree to a variable extent in 18 subjects, or about one-sixth of the cases. In 9 patients it occupied a great extent, one-half or three-fourths of one of the lungs. In the others it was confined to a less considerable space, and assumed the form of small masses, more or less disseminated. In four of the first subjects the excavations were large; in the others they were granulations only, or tubercles imperfectly emptied. Obstruction, or the first degree of peripneumony, was found in 23 subjects, generally to a small extent. In 4 cases only this lesion occupied the greater part of one or even of both lungs.

The occurrence of peripneumony, at a period so near death, is not peculiar to subjects labouring under consumption, and M. Louis observed it much in the same proportion in other chronic diseases. Among 112 subjects dead during the last period of these affections, in 12 a part, more or less considerable of one, sometimes of both lungs, was red, granular, and hepatized. Obstruction (the first degree) occurred 10 times among other subjects; so that here, as in consumptive persons, the history of the symptoms demonstrates that inflammation had taken place a few days only before death. It hence results, that tubercles and the process of tubercular softening, are almost destitute of any influence on the formation of peripneumony, during the last period of consumption.

Nothing was so common as adhesion of the pulmonic and costal *pleuræ;* since among 112 individuals one only was found whose lungs were free throughout. In 8 cases only the right lung, in 7 cases the left, was entirely free; and then there were no excavations, or they were very small. In 25 other cases the adhesions were cellular, easily broken, confined to a small space, and were seldom on both sides at once. In 7 of these 25 subjects, there was no excavation in the lung corresponding to the adhesion; in other 10 the excavations were small; and in the remaining 8 they were of moderate or very large dimensions. In the rest of the cases the adhesions were general or very extensive, consisting of cellular membrane, more or less firm, and almost uniformly corresponding to large excavations. In two cases a false membrane of moderate consistence was converted into tubercular matter. As these adhesions are the consequence of inflammation, and as various circumstances show that they take place at a period from 3 to 8, 12, or 19 days before death, it follows that pleurisy, like peripneumony, is a common occurrence in phthisical persons drawing near the period of existence.

The same disease, however, may occur in persons labouring under other chronic disorders. Thus among 110 subjects adhesions were found in 35; and in 12 cases they were universal, took place on both sides, or on one only. This proportion is doubtless inferior to that observed in phthisical subjects, and demonstrates the influence of tubercles in inducing pleuritic inflammation. The greatest peculiarity in the phthisical, in this respect is a sort of semi-cartilaginous cap, which frequently covers the apex of the lungs, and the conversion of the false membranes into tubercular matter.

An effusion of clear serous fluid to the amount of a pint and more was observed in one-tenth of the cases. This effusion took place in many instances with great rapidity. The same effusion was remarked in consequence of other chronic affections, and excepting diseases of the heart, in the $\frac{1}{4}$ of the cases. This difference of proportion corresponds to that already noticed, regarding the comparative frequency of pleuritic adhesions in the phthisical, and in persons cut off by other chronic diseases. M. Louis infers, that this species of hydrothorax is independent of the nature of the disease; but experience leads us to say, that it bears a pretty accurate relation to the degree in which the circulation through the lungs is impeded, and may therefore be regarded as a tolerably good example of dropsical effusion, in consequence of obstruction.

Epiglottis, Laryngeal Membrane and Cartilages, and Trachea.—Of the parts composing the breath-passages, the larynx is the principal which has attracted attention in tracing the morbid changes which may occur in the course of pulmonary consumption. Those of the epiglottis have not been mentioned, and those of the windpipe have scarcely been noticed. Yet ulcers of the first part are almost as frequent as those of the larynx in the phthisical; those of the trachea are common; and the relative proportion in more than 102 subjects, is stated by M. Louis to amount to 18 cases of ulcers of the epiglottis, or about $\frac{1}{6}$, 22 cases of ulcers of the larynx, or about $\frac{1}{5}$, and 31 cases of ulcers of the trachea, or about $\frac{1}{3}$ of the whole number.

Of the 18 cases of ulcers of the epiglottis, five were uncomplicated with ulcers of the larynx and trachea. In the other 13 this conjunction was observed. In other words, 13 of the instances of ulcers of the epiglottis occurred in subjects having ulcers of the larynx and trachea; so that all the instances of the three kinds of ulcers occurred in $13 + 31 = 44$ subjects, or about $\frac{2}{5}$ of the whole number, 102. These ulcers were almost all confined to the lower or laryngeal surface of the cartilage. In one case only were some found on its lingual surface. The breadth of these ulcers was one, two, or more lines. In 3 cases the laryngeal surface was entirely stripped of its mucous membrane; in 4 cases, besides ulcers, part of the circumference of the cartilage was destroyed; and in a fifth, its destruction was complete.

These ulcerations of the epiglottis were much less common in women than in men, in the proportion of 1 to 3. Thus in an equal number of subjects, the females presented only 6 cases among 18 of ulcer of the epiglottis, 7 among 23 of the larynx, and 9 among 31 of the trachea; and as the proportion is nearly the same for the three kinds of ulcerations, M. Louis thinks it more than probable that it is not the effect of chance.

The most frequent seat of ulcers of the larynx answered to the junction of the vocal chords, where they were sometimes superficial; next to this, the vocal chords themselves, especially their posterior part; lastly, the base of the arytenoid cartilages, the upper part of the larynx, and the interior of the ventricles, which were only in one case the seat of a small superficial ulcer. In some instances one or more of the vocal chords were entirely destroyed, and the base of the arytenoid cartilages was exposed. They were, however, otherwise sound. In two cases only were ulcers of the larynx conjoined with those of the trachea.

Ulcers of the trachea, sometimes very large, were found to occupy chiefly the posterior or fleshy part of the canal, and to be attended with a red colour more or less deep, of the contiguous mucous membrane, and some softening or thickening.

In one subject, the ulceration had spread so much, as to destroy completely part of several of the cartilaginous rings.

The bronchial membrane is more rarely ulcerated than the trachea, and M. Louis found this in 7 cases only; but he admits that this may be a little below the truth, as he did not always examine the *bronchia* with the same attention as the trachea. In the third part of the cases in which this tube was not ulcerated, its mucous membrane assumed a redder colour as it approached the bifurcation; and this was more intense at the fleshy part than elsewhere. From all these facts taken together, M. Louis thinks it probable that the expectorated matter exerts considerable influence in the production both of the diffuse inflammation of the tracheal membrane, and of the tracheal ulcers.

The study of those textures and organs, not the immediate seat of phthisis, has afforded results equally curious and interesting.

Heart, Pericardium, and Aorta.—In 112 subjects, only 3 instances were found of evident increase in the bulk of the heart. This enlargement, which was confined to the left ventricle, might be estimated at ⅓ or ¼ of the volume of the organ; and the subjects of it did not experience symptoms of aneurism. In a much greater number of cases the heart was below its usual dimensions, sometimes to the extent of one-half or ⅔ even. Though this diminution was remarked in those in whom the course of the disease was rapid, (*e. g.* 5 months), yet it was more frequent in those who lingered long.

In about ⅕ of the cases the organ was soft and flaccid, without presenting any relation either to the duration of the disease, or the age of the individual. In 7 cases the walls of the heart were thickened, 6 times in the left ventricle, and once only on the right;—a proportion, the reverse of what ought to take place if this phenomenon depended on obstruction of the pulmonary circulation. As in these several cases the cavity of the heart was contracted, and its size was not sensibly enlarged, or rather was diminished, this condensation is to be regarded, not as *hypertrophy*, but as the effect of the spontaneous shrinking of the parts on themselves.

More rarely the ventricles were thinner than natural; and this was found in 2 cases only on the right, and in 4 on the left side. The only general result which can be safely established regarding the influence of phthisis on the heart is, that it diminishes its size as that of other organs.

Adhesion of the pericardium to the heart was found in two cases. In a third, both the capsular and the cardiac surface of the pericardium were covered by a false membrane, a line *thick*, moderately firm, and the centre of which contained a small quantity of serous fluid. The subject of this case had palpitations and very irregular pulse during the last 23 days of life. In the tenth part of the cases, the pericardium contained serous fluid to the amount of from 6 to 10 ounces.

It must not, however, be forgotten, that the state of the heart was much the same in consequence of other chronic diseases, as in phthisical subjects. Of 80 cases of this kind it was unnaturally large in 5 subjects; in 9 it was soft and flabby; in 8 the left ventricle was hypertrophied; in 7 it was thinner than natural; whilst hypertrophy and thinness of the right ventricle were found in one case only. Lastly, the volume of the heart was much smaller than natural in 30 cases, or somewhat less than ⅕ of the subjects; that is to say, more frequently than in phthisis. This difference is ascribed by M. Louis to cancerous affections, especially to those of the stomach and womb, in which the diminution of the bulk of the heart was more frequent and more obvious than in consequence of any other disease.

The aorta, measured comparatively in its whole length in phthisical persons, and in those cut off by different diseases, was found narrower in the former than in individuals destroyed by acute diseases, but less narrow than in those destroyed by cancerous affections. In ¼ of the subjects, its inner surface was of that bright red colour remarked first by Hodgson, and afterwards by Bertin and others.

The *pharynx and œsophagus* were in most cases natural. Among 80 cases, ulcers of the pharynx, which were small, numerous, and distributed uniformly over the mucous membrane, were observed in 2 only; in 2 cases only the œsophagus presented a single ulcer, 5 lines in diameter; and in another a considerable number of small superficial patches.

Stomach.—Among 96 cases noted with care, in 9 cases the stomach was double or three times its usual bulk; in 6 of these the great curvature was on a level with the iliac crest, and in the other 3 it slightly exceeded the navel. That this is peculiar to phthisical subjects, appears from the fact, that among 230 persons who died of other diseases, chronic or acute, in 2 cases only, one of disease of the heart, the other caries of the vertebræ, was the stomach found so much augmented as to descend to the crest of the ilium. As the liver was in both sorts of cases enlarged, and consequently carried downwards, it may be inferred, that the relation between the state of the liver and that of the stomach is pretty uniform.

In 19 of the 96 cases (about ⅕) some part of the mucous membrane, generally about the upper part and great cul de-sac, was softer and thinner than natural, with a bluish-white or yellowish colour. This change, which M. Louis regards as an effect of inflammation, was more frequently seen in women than in men in the proportion of 12 to 7; from which it may be inferred, that excesses at table are not to be ranked among its exciting causes.

In 8 of the 96 cases, the gastric mucous membrane, corresponding to the anterior surface between the great and small arches, was red, thickened, and papillated, or even less consistent than natural. This lesion, which was manifestly inflammatory, was found in individuals of different ages who had laboured under the disease from 3 to 5 years, and was more frequent in women than in men in the proportion of from 7 to 1. As in all the cases of this change the stomach was covered by an enlarged liver, and somewhat forced downwards, M. Louis thinks that this last organ may have considerable influence in producing inflammation of the gastric mucous membrane of the anterior division of the bowel.

In 17 of the 96 cases, the mucous membrane covering the great sac of the stomach was unusually red and softened. Though this was rarely accompanied with evident symptoms during life, M. Louis does not hesitate to ascribe it to inflammation. In certain instances small ulcers were seen in the membrane.

In 18 of the 96 cases, independent of the lesion already noticed, the mucous membrane was marked with prominences various in shape and size, generally round, from 1 to 2 lines in diameter, not unlike granulations, and sometimes separated by deep furrows, variable in length, and about a line or less in breadth. The membrane was almost always greyish or pale-grey, sometimes firmer and thicker than natural, and sometimes presenting minute ulcers. This granulated state the author regards as the effect of slow inflammation.

In 8 cases, the $\frac{1}{12}$ part, ulcers of the gastric mucous membrane were observed, generally small, not numerous, and complicated with some other morbid state of the same membrane. One case only occurred of a single patch of ulceration, $2\frac{1}{2}$ inches of superficial extent, and one only in which there were 28 minute ulcers; both without other complication.

In 6 individuals in whom the gastric mucous membrane was changed neither in consistence nor in thickness, its colour throughout was more or less intensely red—which, however, disappeared after 2 or 3 hours maceration. As gastric symptoms took place two or three days before death, M. Louis regards this also as the effect of slight recent inflammation.

In 4 cases the greatest part of the mucous membrane of the upper extremity of the stomach was very much softened, without change in colour or thickness, and without being preceded by remarkable gastric symptoms.

That these lesions, however, are not peculiar to phthisical subjects, is to be inferred from the fact, that of 94 cases of persons cut off by other chronic diseases, in not fewer than 48, fully a half, similar changes were found, though in different proportions. A tabular view of the number of cases of each kind of change in phthisical subjects, and in those who had died of other maladies, will place the comparative frequency of each affection in a pretty clear light.

Among 96 phthisical subjects, the gastric mucous membrane was diseased in the following modes and numbers.		Among 94 persons cut off by various chronic diseases, the gastric mucous membrane was diseased in the following modes and numbers.	
Thinned and softened in	Cases 19	Thinned and softened in	Cases 6
Red, thickened, mammillated, or softened anteriorly in	3	Red, and a little irregular anteriorly in	2
Softened and dull-red in the great sac, in	17	Softened and red-brown in the great sac	6
Mammillated, greyish, reddish or thickened, in	19	Mammillated, greyish, sometimes thickened or ulcerated, in	16
More or less intensely red throughout, without change of thickness, and consistence, in	6	More or less red throughout, without softening, in	18
Softened without change of colour or consistence in	4		
Ulcers without other lesion	2		
Raised by a viscid fluid in	1		
In some degree cicatrized	1		
	77		48

From this it appears, *first*, that among 96 cases of phthisis, in 19 only, or about $\frac{1}{5}$, is the mucous membrane of the stomach free from morbid change; *secondly*, that among 94 cases of fatal chronic disease, it is unaffected in 46, or fully one half; *thirdly*, that the most serious morbid change, viz. softening and thinning of the membrane, is three times more frequent in phthisical than in other subjects; and *lastly*, that phthisis disposes this membrane in some mode or other to inflammation; generally a very severe and intractable form.

The *duodenum* was almost constantly natural; in 3 cases only among 60 were ulcers found.

The *ileum* presented numerous varieties of morbid change; softening, thickening, redness of the mucous membrane, small abscesses in the submucous tissue, semicartilaginous or tubercular granulations, and ulcers.

The intestinal mucous membrane was softened, not more frequently in phthisical than in other chronic affections. Among 95 subjects, this change was found in 8 cases only, and in 3 of these to a very moderate extent. In the other 5, the membrane was as soft as mucus; in all the same change prevailed throughout the intestine. In 3 cases it was conjoined with thickening, and more or less redness,—the result of inflammation. In 1 case only was the mucous membrane thickened, without redness or softening. In 13 cases it was more or less red, without change of thickness or consistence. In 5 of these the redness extended over the whole intestine; but in the other 8 it was confined to a small space of its length. As the mesenteric vessels were in no case loaded with blood, this redness must have arisen from some other cause than that of mere *stasis* of this fluid.

The granulations were of two sorts, the semicartilaginous and the tubercular. The former, which were most frequent and most numerous, were distributed equally round the whole bowel; and though they might extend through its whole tract with intermediate spaces of 2 or 3 square inches, they were generally largest and most numerous towards the cœcum. Generally after attaining the size of a pea, the mucous membrane covering them became thick, softened, and gave way; and when this loss of substance began, it proceeded daily, and formed an ulcer with hard, white, opaque edges. The tubercular granulations, which were greatly less frequent, were found indiscriminately on any point of the circumference of the bowel; were almost always most numerous near the cœcum; were never seen near the duodenum; and terminated in minute ulcers, by a process similar to that of the tubercular excavations of the lungs. Separately or conjointly, these two sorts of granulations were found in 36 of the 95 subjects; and in 6 of these the cartilaginous granulations were alone.

Ulcers were still more common, which shows that they may be independent of both forms of granulations. These ulcers were observed in 78 of the 95 subjects, that is, twice more frequently than the granulations, or in about 5-6ths of the cases. They were found in the whole extent of the intestine in one-6th of the cases only; in the majority of the cases, they were found in the lower third of the bowel, or in the middle and lower thirds at once; and in 3 cases only were they confined to its middle third. When inconsiderable, they were almost exclusively confined to the mesenteric part of the bowel, corresponding to the oval patches formed by the union of the mucous *crypta* or glands, and which could then be no longer distinguished. In their highest degree of developement, they occupied the whole circumference of the bowel. The form of these ulcers was elliptical, annular, or linear; and their size varied from one line to 5 or 6 square inches, when they were generally the result of the coalescence of smaller ulcers.

Of these several forms of lesion, softening, thickening, redness of the mucous membrane, and the cartilaginous granulations are common to phthisical subjects, and those cut off by the most opposite chronic and acute maladies; the cartilaginous granulations are less rare after phthisis than in any other circumstances; but the tubercular granulations, which are never met but in phthisical subjects, and ulcers of the ileum, which are very rarely if ever met but in these, appear to be quite peculiar to subjects of this disease. Among 85 subjects cut off by different chronic diseases, in 6 cases only were ulcers found in the ileum; in 3 of these the lungs of the individual contained several tubercles or tubercular excavations; and of the other 3, one was a female whose principal disease was *gastritis*, and 2 died of dysentery. As the ulcers were in these 3 cases both small and few, abstracting from chronic affections and severe fevers, it appears that if ulceration of the ileum is not entirely peculiar to the phthisical, it is very nearly so in regard to ulcers of a certain extent.

The lesions of the *colon* were much the same as those of the ileum. In 27 of 95 cases, (more than ¼,) the whole length of its mucous membrane was red; in 15 cases continuously so; and in 12 cases with healthy patches. This redness coincided, save in 3 cases, with distinct softness of the membrane. This last change was so common, that it was remarked with and without other changes. Altogether it was found in 62 cases, either throughout or over a considerable length of the bowel. It is ascribed to inflammation, developed during the last days of existence.

Tubercular granulations were found in 13 cases, or the ⅛ part nearly; but semicartilaginous granulations in none.

Ulcers were found in 70 of the 95 cases; a degree of frequency equal to that remarked in the small intestines. In general, they were from 3 to 6 lines in diameter. Those of greater size were limited to the ¼ part of the cases. In 19 cases, in which they were small, they were distributed uniformly over the whole surface of the bowel. When larger, they were found in the proportions of 17 in the cœcum, 11 in the ascending colon, 8 in the transverse arch, and 4 in the rectum. Great and small taken together, they were found in the cœcum to the amount of 34 cases, in the right colon to that of 37, in the transverse arch 25, in the left 8, and in the rectum 32; from which it appears that ulcers were found in the cœcum and in the rectum very nearly in the same number of cases. M. Louis considers these ulcers as not always originating from inflammation. This, however, requires to be more fully investigated.

The lesions now enumerated, excepting tubercular granulations, were observed, but in very different proportions, in subjects cut off by other chronic maladies. Thus, among 92 individuals dying under these circumstances, in 13, more or fewer ulcers were found in different parts of the large intestines. In 6 of these, however, there were tubercles of the lungs, which reduces the cases of colic ulcers to 7 in 86 cases. Of these 7 cases, 4 were dysenteric; and in almost all the ulcers were small, and different in character from those of the phthisical. Softness, with or without redness and thickening of the colic mucous membrane, was remarked in ⅓ of the subjects, which is greatly less frequent than in the phthisical.

The Liver. In 40 among 120 cases, or the ⅓ part, the adipose transformation of this organ had taken place. It was then pale, fawn-coloured, more or less tender, checkered with red, outside as well as within. Though of its usual shape, its bulk was almost always increased, sometimes to the amount of twice its natural size. In reference to the etiology of this singular change, it is to be remarked, that it is found almost solely in individuals attacked with consumption. Among 230 persons cut off by diseases acute or chronic nearly in equal numbers, were 9 instances of adipose liver; and seven of these occurred in persons who had a certain number of pulmonary tubercles. This gives 49 cases of adipose transformation of the liver, collected in the course of three years, among which 47 occurred in phthisical persons. Of these 49 cases again, 10 only were in men; from which it results that the relative proportion of adipose livers among males and females is as 1 to 4 nearly. The influence of strength and age seems to be very little subject to any regular law. Of the 40 phthisical subjects mentioned as presenting this change, 18 were from 20 to 30 years; 13 from 30 to 40; 5 from 40 to 50; 3 from 50 to 60; and 1 from 60 to 70;—a proportion much similar to that of the disease itself at the different periods of life. The duodenum was sound in the most of these cases.

This change might take place very rapidly; and M. Louis has seen it in cases in which the phthisical symptoms had run their course in 50 days. It is also to be remarked, that it was as distinctly marked and as complete in cases in which the disease had lasted some months only, as in those in which it had continued for several years.

The spleen was softened, above or below its natural size, in a great number of cases. In a 16th part it contained tubercles. In other subjects the proportion of cases of softening of the spleen was more considerable after acute than after chronic diseases, and much the same as in the phthisical. In no case, however, did the organ present tubercles, which therefore must be regarded as nearly peculiar to consumption.

The *peritoneum* presented in 4 subjects thick purulent matter, and a soft yellowish false membrane, marks of recent inflammation. Serous fluid from 1 to 8 pints was found in 22 cases, about ⅕ of the whole. In several cases the peritoneum was tuberculated. In one case the great omentum, and the mesocolons contained a mixture of bluish-grey semistransparent tubercular matter.

This serous effusion is very common after diseases of the heart; but, allowing for this exception, M. Louis met with it to the same amount in 16 among 67 cases; which gives much the same proportion as in phthisical subjects. In none of these, however, was the peritoneum tubercular; and in none did it contain semitransparent granulations; which, with the facts already enumerated, tends to show the analogy of the tubercular and the semitransparent matter.

The *brain* in 14 among 100 subjects was more or less injected. In 5 cases its consistence was much less than natural. In a 6th the left hemisphere was softened. In 6 cases pulpy softening was found in the fornix, in the septum, or in the striated bodies, without change of colour. In $\frac{5}{4}$ of the subjects the lateral ventricles contained limpid fluid; and the sub-arachnoid tissue was filled with similar effusion.

These changes, however, are not peculiar to the brains of the phthisical, and are found after the most varied affections. Among 115 cases, comprehending neither apoplexies, softening of the brain, nor severe fevers, in 16 cases there was slight effusion of serous fluid, clear or dull, in the upper part of the cavity of the arachnoid membrane. In 9 cases this membrane was thickened. In 4 cases there were shreds of false membrane. Effusion of serous fluid is so frequent, that it was observed in 92 cases in different degrees. In 15 cases the consistence of the brain was much diminished, though less than in phthisical subjects. Of these 15, two only belonged to individuals cut off by acute diseases; and as the number of the last was to that of chronic affections as 45 to 70, it may be inferred, that the diminution of consistence of the brain is an especial effect of diseases of long duration.

The only alteration observed exclusively in the brains of the phthisical are hydatids and tubercles. The former cannot be regarded as peculiar to the disease; but many circumstances show that tubercles are entitled to this character.

In the course of this abstract of the researches of M. Louis, it appears that the presence of tubercles in the bodies of the phthisical is not confined to the lungs exclusively. This, indeed, which had been long admitted as matter of general observation, was first confirmed by the researches of Bayle. To M. Louis, however, belongs the merit of attempting to establish numerically the relative frequency of this morbid growth in the different textures and organs. The results may be shortly but conveniently stated in the following order ·

Tubercles were found in

Organ.		Subjects.
The ileum,	in about	one-third
The colon,	in	one-ninth
The mesenteric glands,	in	one-fourth
The cervical glands,	in	one-tenth
The lumbar glands,	in	one-twelfth
The prostate,	in	one-thirteenth
The spleen,	in about	one-fourteenth
The ovaries,	in	one-twentieth
The kidneys,	in	one-fortieth
The womb,		in one subject only.
The brain,		
The cerebellum,		
The medulla oblongata,		
The ureters,		

Among 358 subjects examined by M. Louis, in none were tubercles found in any organ without being also in the lungs. The existence of tubercles in these organs appears thus to be a necessary condition of their existence in other parts. A single fact only is at variance with this conclusion. In one subject, dead of severe fever, the lungs contained no tubercles; yet a small quantity of tubercular matter was found in the mesenteric glands.

The second part of the work, which consists of the descriptive history of the symptoms of consumption, will perhaps be the most interesting to the merely practical reader. The chief object of the author is to distinguish the symptoms which are uniform from those which are accidental; those which are peculiar from those which are common; and those which are pathognomonic from those which are not. We shall advert merely to a few of the leading views given by the author on some of the most striking symptoms of consumptive disease.

Hæmoptysis, violent or moderate, took place in 57 of 87 cases, or in about $\frac{2}{3}$ of the whole number. Violent hæmoptysis, by which is meant blood spit up in mouthfuls, or to the amount of several ounces in a few minutes, in half an hour or an hour, took place in 25 of the 57 cases. Among 1960 individuals, the number admitted into the hospital of la Charité during the period of the observations of M. Louis, none of those who were *not* phthisical had hæmoptysis, except a few individuals, in consequence of external violence, or a small number of females whose *menses* were suppressed. The author infers that, except in these cases, a copious hæmoptysis renders the existence of tubercles in the lungs highly probable. This frightful conclusion, the commissaries justly remark in their report, is happily invalidated by many other facts.

In regard to other characters, hæmoptysis is more frequent in women than in men, in the proportion of 3 to 2. The relation between this symptom and the age of the individuals differed in the two sexes. The third part of the females between the ages of 19 and 40 had no spitting of blood; whilst in those between 40 and 65, it was absent in a seventh part only; a proportion the inverse of that which ought to take place, if this hemorrhage be, according to the opinion of some, vicarious to the uterine monthly discharge. In men, on the other hand, the proportion was the same above and below 40 years; hæmoptysis having taken place in 12 among 26 subjects above this age, and in 14 below it.

Pain of the chest or side is seldom urgent in phthisical persons, or if it be, it is temporary only; and this absence of much uneasiness is in general one of the circumstances which tend so completely to deceive persons labouring under this disease of the true nature of their situation. Pain, however, either between the shoulders, or in the side, occurred in a $\frac{1}{5}$ part of the cases, sometimes severe and lasting. In most cases these pains corresponded to adhesions of the pulmonic and costal *pleuræ*, and pretty often with the number and size of tubercular excavations. In 22 cases, however, the patients complained of no pain in any part of the chest; and as in most of these, adhesions were found at the apex of the lungs only, while the excavations were equally numerous and large as in the cases where pains of different degrees of severity had been felt, there is reason to believe that the most frequent cause of pain in the phthisical is pleuritic inflammation.

Diarrhœa is so frequent, that it seems almost as essential a symptom of the disease as cough or expectoration. Among 112 cases, 5 only escaped it. In the $\frac{1}{8}$ part of the cases it began with the phthisical symptoms, continued till death, and lasted from 5 to 12 months. In some persons who struggled under the disease for 4 or 5 years, it continued to some amount during the whole of that long period. In the majority it commenced during the second half of the disease; and in others during the last days of existence;—a circumstance which M. Louis thinks sufficient to warrant a distinction into two forms or conditions of the affection.

The *diarrhœa of the last days*, by which is meant that which commenced from the 20th to the 50th day before death, formed the $\frac{1}{4}$ part of the cases. This was connected in $\frac{1}{2}$ of the individuals with ulcers of the ileum or colon, or both, and in $\frac{4}{5}$ of the subjects with a softened and reddened state of the colic mucous membrane. It was always milder in persons in whom there was ulceration without softening, than in cases in which this last condition existed.

The *long-continued diarrhœa* might be remitting or continuous.

The duration of the former varied from 48 days to 15 months, with remissions of from 8 to 20 days.

It was observed in 16 subjects, in 10 of whom were ulcers in the ileum, 6 in the colon, and 2 in both parts. In 10 of these also the colic mucous membrane was much softened, and in 3 of the 10 it was reddened and thickened.

The *continuous diarrhœa* is that which lasted from 1 to 12 months or more without interruption. Attended generally with colic pains, it was connected with ulcers of the ileum in 35, and with ulcers of the colon in 31 of 41 cases. In 12 cases the ulcers of the ileum occupied its whole length. In 19 cases there were large ulcers of the colon; in 30 cases the colic mucous membrane was softened; and in 17 of the last it was red. The general result is, that in long and continued diarrhœa the intestinal ulcers are large and numerous; while in long but remittent diarrhœa they are merely less distinct.

The *wasting*, which is the most constant and the most obvious sign of phthisis, began in half the cases with the first symptoms; in a small proportion with the diarrhœa; and in the $\frac{1}{5}$ part with the fever. From these facts M. Louis infers, that it is to be ascribed neither to the fever, to the diarrhœa, to loss of appetite, nor to the morbid state of the gastric mucous membrane, but to the change more or less considerable effected in the pulmonic tissue, and which interrupts and deranges the regularity of the process of nutrition.

A great deal of curious and instructive matter on the symptoms attending peripneumony and pleurisy supervening previous to death; on the symptoms of ulcers of the epiglottis, of the larynx, and of the trachea; on the symptoms of the affections of the stomach; on the state of the organs of generation; and on the symptoms of cerebral disease supervening in the phthisical, must be omitted to notice shortly the views of the author on *latent* consumption.

Understanding by this term cases in which, through slight variations in the order and duration of the morbid phenomena, the form of the disease is so changed that it is impossible to recognise it until it has made very considerable progress, M. Louis finds, that among 123 cases of phthisis, 8 or a $\frac{1}{15}$ part were examples of latent pulmonary tubercles, that is, of tubercles existing in the lungs previous to cough, for the space of from 6 months to 2 years. This proportion, however, he believes below the truth, especially if hæmoptysis, more or less severe, is an effect and not a preliminary symptom of tubercles. In this view, the number must be augmented to 15 by the addition of 7 cases in which blood was coughed up previous to the other symptoms of consumption. This gives a little more than $\frac{1}{8}$ to be cases of latent consumption.

The account of the work of M. Louis has extended to such a length, that notwithstanding the accuracy and value of the information, we must leave the greater part to the leisure and the discretion of the reader. We shall not conclude, however, without shortly noticing a mode in which the disease sometimes terminates fatally, viz. by perforation of the lung.

This accident consists in a tuberculous excavation opening into the pleura, and allowing the escape not only of tubercular matter, but of air into its cavity. When this happens, the patient suddenly feels in one side of the chest acute pain, with dyspnœa, generally extreme, and inexpressible anxiety; then all the symptoms of acute pleurisy, continuing in the same degree or remitting till death, which happens in the space of from 24 hours to 38 days after the first appearance of the symptoms.

Examination of the body after death discloses more or less air, purulent matter, or bloody serum in that side of the pleura, where the pain was felt; then a perforation of the tissue of the corresponding lung, resulting from a tubercular excavation opening into the pleura; and, if death takes place soon, a false membrane is found covering the pleura.

In five subjects this perforation took place in the same point, *i. e.* opposite the angle of the 3d and 4th ribs. Among 123 cases 8 examples of perforation occurred; and in 7 of these the accident took place in the left lung.

ART. VII.—*Recherches Physiologiques, &c.* Physiological and Chemical Inquiries on Digestion. By MM. LEURET and LASSAIGNE. A Treatise which received honourable mention from the Royal Academy of Sciences, at its public meeting on the 20th June 1825. Paris, 1825. Pp. 220.

Die Verdauung nach Versuchen, &c. Experiments on Digestion. By FREDERIC TIEDEMANN and LEOPOLD GMELIN, Professors of the University of Heidelberg. Part I.

IN 1823 the Parisian Academy proposed a prize of 3000 francs to be awarded in 1825 for the best memoir on the subject of digestion. In the advertisement the competitors were required to take advantage of the late discoveries in organic chemistry, and with their aid to determine the changes which are effected, in the successive parts of the alimentary canal of the four classes of vertebrated animals, both on the simple organic principles, such as gelatin, albumen, and sugar, and on the compound articles of food and drink.

The two works announced above are the result of the Academy's invitation, and are the only memoirs hitherto published by the competitors for the prize. The commission of the Academy, consisting of MM. Magendie, Thenard, Gay-Lussac, Cuvier, and Dumeril, did not account either worthy of the prize; considered them, however, as possessing great merit, and to be of equal merit; and recommended the academy to make honourable mention of them, and, in consideration of their expensive experiments, to assign each a sum of 1500 francs by way of encouragement.

Their decision has called forth a somewhat indignant complaint on the part of Professors Tiedemann and Gmelin; who accuse the commissioners of neglect of duty in not having repeated the leading experiments, regarding the results of which the two rival works are at variance; in plain terms declare that, as it is impossible for both of them to be correct, and one must therefore be decidedly superior to the other, the commissioners evaded the task assigned to them on account of the trouble to which the necessary experiments would have subjected them; and finally refuse to accept either of the awards which were granted by the academy at the recommendation of the reporters, and which their rivals MM. Leuret and Lassaigne gratefully received.

It would be too great an encroachment on the more legitimate purposes of this work to enter at length into their accusation Thus much, however, may be said of it. As Professors Gmelin and Tiedemann have stated, the subject of the prize was certainly a great deal too comprehensive; and no other proof is required to that effect than the disappointment which the result of the competition has caused among all scientific men. Considering the immense number of disputed facts which the experimentalist had to settle, and the great tediousness of experiments in organic analysis, two years was an insufficient time even for clearing away the rubbish which lay on the field, much more for afterwards proceeding to gather fresh fruits from it, even although he had devoted his whole leisure to the labour. The opinion of every candid man, on a careful perusal of both works, must be, that, although he is on the whole disappointed with both, each deserved the prize under the circumstances, provided his experiments were correct;—that it would have been better had the academy commissioners ascertained that point, as they are from old practice expected to do;—but that even if the respective accuracy of the rivals, where they differ, had been settled, there would still have remained enough of valuable matter to make the commission hesitate in excluding either from the Academy's honours.

It is impossible to deny that both works, if not full of new and important discoveries, are at least replete with valuable information on many of the most essential and most disputed points in the history of digestion, and as such must be peculiarly welcome to the physiologist. But this is not all. Both of them do contain many new facts, particularly the work of the two German professors. The latter have been singularly unfortunate, however, in having been anticipated as to many of their discoveries by the contemporaneous discovery and prior publication of them in other countries. We cannot help adding that they have been perhaps still more unfortunate in the style of their publication; for they have overloaded it with the minutiæ of their experiments,—of experiments too which often lead to no satisfactory or useful result; and they have adopted an arrangement, both in describing their experiments and in planning their work, so perplexed and irksome to the reader, that it would excite no wonder if after all the academy commissioners not only did not repeat, but likewise did not carefully study their researches. Their object in giving the details of their experiments has evidently been a consciousness in the accuracy and faithfulness of their narrative, and a willingness to refer their quarrel with the academy to the arbitration of disinterested men of science. But they have in consequence given their rivals a vast advantage over them by yielding possession of the ear of the general reader; for the treatise of MM. Leuret and Lassaigne is elegantly and perspicuously written, and, as it draws freely on the faith of the reader by not mentioning the details of a single experiment, it may be perused in a very short time, and without much practical knowledge of organic chemistry, or physiological operations.

We shall now proceed to give an analysis of both works, distinguishing the results of each. We had intended to prefix a brief account of the analytic method and tests employed in the chemical parts of the inquiries,—not doubting that such information would be acceptable to many of our readers who turn their attention to organic chemistry; but our limits have prevented the fulfilment of this intention, at least for the present.

Following the order in which the several processes that form the function of digestion come into play, the first subject which has arrested the attention of the authors of both treatises is the *Saliva*,—its composition, and uses.

MM. Leuret and Lassaigne have discussed this topic very briefly. They state that they found the composition of the saliva the same in all animals,—in man, the dog, and the horse; and that it contains one per cent. of solid matter, consisting of free soda, muriates of soda and potass, and carbonate and phosphate of lime, a trace of albumen, and much mucus.

The inquiries of the Professors of Heidelberg have been much more elaborate, and their results more varied and interesting. Their experiments were made with pure saliva from the salivary duct of the sheep and the dog, and with the impure saliva of man collected sometimes during its natural flow, sometimes during the stimulation of the ducts by tobacco smoke. According to these experiments the organic principles in the saliva of the dog are chiefly mucus, and salivary matter with a little osmazome; the saline substances are chiefly alkaline muriates and carbonates, with a small quantity of alkaline acetates and phosphates, and the carbonate and phosphate of lime; and the alkali is almost entirely soda. In the sheep the saliva contains a much larger proportion of phosphate of soda, which indeed appears to form the principal part of the solid contents; and it likewise contains the *Sulpho-cyanate of soda*, and no acetate. In man the impure saliva contains a proportion of alkaline phosphate intermediate between that in the dog and that in the sheep. The alkali in all the alkaline salts is not soda but potass; and, as in the sheep, there is here also a sensible quantity of *Sulpho-cyanic acid*. It appears, therefore, that the animal principles are nearly the same in all, but that the salts are different in each.

The presence of the Sulpho-cyanic acid, one of the most active of all poisons, is a remarkable fact, for which animal chemistry is indebted to Professors Tiedemann and Gmelin. They were first led to suspect its existence in the human saliva, from remarking that the permuriate of iron struck in it a deep orange-red colour, not removable by muriatic acid till it was added in great excess; and they afterwards proved its existence satisfactorily in the alcoholic extract of the saliva of man and the sheep by the following tests. The solution in water became of a deep blood-red colour with the permuriate of iron, and a large excess of muriatic acid was required to remove the colour. When the extract was distilled with phosphoric acid, the product acquired in a few days the odour of hydrocyanic acid. When the distilled fluid was mixed with a few crystals of sulphate of iron, and the pale-red solution resulting was treated with a solution of sulphate of copper, a white powder fell down, which, after being washed, became orange-red with potass; and the alkaline liquor produced, after being filtered and neutralized with muriatic acid, became blood-red with permuriate of iron. These reactions seem to leave no doubt, however singular it may appear, that the saliva contains the acid in question.

With regard to the uses of the saliva, the German and French experimentalists have both repeated the experiments of former physiologists on its effects upon alimentary substances *out of the* body;—both have confirmed the received opinion, that it accelerates putrefaction; and they agree in thinking that its chief uses are to lubricate the alimentary bolus, to bring sapid bodies under the influence of the organ of taste, and to prepare the food for digestion by softening it. But Tiedemann and Gmelin likewise conceive, that its animal principles serve to assimilate unazotized aliments; and as to the sulpho-cyanate of potassa, they ask whether its object is not to destroy the contractility of the fibres of the food. This question may be answered by another:—Is there any contractility to destroy in boiled or roast meat?

A short account of the process of *Deglutition* in the work of Leuret and Lassaigne contains nothing worthy of particular notice. The next process in order is that of *Chymification*, the most important and obscure of all the processes which constitute the function of digestion.

The most correct view of the process of chymification is that which considers it as preparing the food for being absorbed by the chyliferous vessels, and therefore as comprehending the changes effected on it, not only in the stomach, but likewise in the small intestines, or, at all events, in their superior portion. To the accomplishment of the process under this view of its nature, the co-operation of various organs, and the addition of various peculiar fluids is necessary. It is probable that the spleen is in one way or other concerned in it; the muscular action of the stomach and intestines is necessary; and it is likewise requisite that the stomach supply the gastric juice; the pancreas the pancreatic fluid; the liver the bile; and the mucous crypts of the stomach and intestines a lubricating mucus. Each of these particulars has been made more or less the subject of inquiry by our authors.

On the function of the *Spleen*, a few interesting experiments and remarks have been made by MM. Leuret and Lassaigne. They first pass shortly in review some of the most accredited theories hitherto contrived to assign to it some useful purpose, and then fix upon that theory as the most probable which accounts it a mere *diverticulum* for the blood during digestion. When the stomach and intestines are distended with food, and the process of digestion is going on, there is evidently an increased afflux of blood towards the villous membrane of the whole alimentary canal, and consequently an additional quantity of venous blood to be returned through the hepatic vessels. But these vessels are incapable themselves of accelerating the passage of the blood through them, or of undergoing more than a moderate degree of distention. It follows therefore that the mesaraic veins, as they are by no means very extensile, must become gorged unless the splenic vein ceases to discharge the same quantity of blood into the vena portæ, as it does when the digestive organs are in a state of repose. A diminution of its discharge is obviously to be effected most readily by the distention of its minute ramifications. Accordingly, the structure of the splenic vein and its ramifications is peculiarly adapted for answering that object; for the venous radicles commence in the form of cells, and the whole veins, even the splenic trunk, are remarkably extensile: Leuret and Lassaigne have found that the spleen of the dog, which generally weighs but a few ounces, acquired the weight of a pound and a half two hours after a ligature was applied on the vena portæ. It is a natural enough supposition, then, that the use of the spleen is to act as a temporary reservoir for part of the increased quantity of blood returning from the digestive organs, while the other part is effecting its passage through the liver. This view of its function is confirmed by some good observations which the French physiologists have made on the state of the spleen during the progress of the food. In all animals, at least in the dog, cat, rabbit, guinea-pig, and other mammalia, the spleen has a rosy or vermilion tint when they are fasting: after chymification has begun, it has a bluer colour, and is somewhat gorged; but it does not acquire its deep bluish-black colour and turgidity till the chyme has passed the pylorus, when the intestinal membrane participates in the activity which had previously been confined to the stomach.

This theory is not a new one; but it has not till now been supported by any very satisfactory argument. It is of course quite reconcilable with the fact that the spleen may be sometimes removed without material injury.

The next topic in point of order should embrace the uses of the *Muscular Action and Secretions of the Stomach*; but as it is of consequence to lay the whole of that interesting subject before the reader in one view, and our limits prevent us from doing so in the present number, we shall pass on to another topic which will not require so much detail, and for the understanding of which, a knowledge of the discoveries of our authors regarding the functions of the stomach is not necessary,—namely the qualities and use of the *Pancreatic juice.*

The pancreatic fluid, concerning whose nature and purpose physiologists have hitherto been very much in the dark, has received a due share of the attention of the rival experimentalists. They both commence with an outline of the inquiries of their predecessors on the subject. This cannot be easily analyzed. It is sufficient to remind the reader that de Graaf and Schuyl thought the pancreatic fluid was secreted in large quantity, and was acid in its nature; that more lately, and particularly by Mayer and by Magendie, it has been found to be alkaline; and that Magendie observed its secretion to be so very slow in the dog, that no more than a drop was procured from the opening of the duct in half an hour.

As to its quantity, it would appear that the statement of the early experimenters is more correct than Magendie supposes, that the minuteness of the quantity sometimes procured, has arisen from the difficulty of reaching and securing the duct, but that the quantity secreted by most animals is after all inconsiderable. Tiedemann and Gmelin got from the sheep 89 grains in five hours; from the dog 154 grains in four hours; and Leuret and Lassaigne obtained three ounces in half an hour from the horse. The latter authors add, that they have observed it flow much more rapidly from the opening of the duct, when stimulating food was applied to it, or when the animal drew deep inspirations.

Leuret and Lassaigne say it is always alkaline. Tiedemann and Gmelin on the contrary aver, that the portions collected at the beginning of the experiment are always feebly acid; but that what flows afterwards is faintly alkaline; and they ascribe the change to the great disturbance caused by the operation which is required to apply and secure the recipient vessels. The former have experimented on the horse only, the latter on that animal, and on the dog and sheep also.

In composition, according to Leuret and Lassaigne, it is identical with the saliva, as is generally thought by physiologists. For that of the horse contains but one per cent. of solid matter; the animal principles of which are chiefly mucus, with a little matter soluble in water, another matter soluble in alcohol, and traces of albumen,—and the salts free soda, muriates of soda and potass, and phosphate of lime. Upon this subject too, as on the analysis of the saliva, the researches of Tiedemann and Gmelin have been most minute and elaborate; and their results again differ considerably from those of their competitors. They maintain that the pancreatic fluid differs materially from the saliva, in never containing any sulpho-cyanic acid, or free soda, or mucus,—in being, as already mentioned, acid in its natural condition,—in containing a much larger quantity of solid matter, and especially a much larger proportion of albumen,—in containing, in the dog at least, a peculiar principle soluble in water and in alcohol, and, when pure, precipitated rose-red by chlorine,—in sometimes containing a good deal of phosphate of soda and acetate of soda. And assuredly if their experiments are correct, the want of identity between the two fluids is completely established. The pancreatic fluid of the dog, horse, and sheep yields a large quantity of coagulum when heated, which the saliva does not: This can be nothing else than albumen, and it amounts in the dog to four, in the sheep to two per cent. of the whole. There is little or no mucus in it; for water boiled on the extract, after its being acted on by hot alcohol, takes up a substance intermediate in properties between caseine and salivary matter; while what remains has all the properties of coagulated albumen. The permuriate of iron does not strike in the fluid a red colour, permanent with an excess of muriatic acid; consequently there is no sulpho-cyanic acid present. There is no free soda, because, in the healthy state of the fluid, it has no alkaline reaction on litmus. Acetate of soda is present, because the permuriate of iron strikes with the solution of the alcoholic extract a faint red colour, disappearing with a slight excess of muriatic acid; and the extract of the original fluid yields by incineration a residue which contains carbonate of soda. Phosphate of soda is likewise present in considerable quantity, in the product of the incineration of the extract in the sheep; but its quantity is less in the dog. The total amount of the solid matter is in the dog nearly nine, in the sheep about four per cent. According to the Heidelberg professors, therefore, the pancreatic fluid contains, of animal principles, albumen, a little osmazome, caseine, (or salivary matter?) and a principle characterized by being turned red by chlorine;—and the salts are chiefly muriate and phosphate of soda, with occasionally a good deal of acetate, and a small quantity of sulphate of soda, and phosphate and carbonate of lime; there is very little potass in it. The differences between their results and those of Leuret and Lassaigne, are too great to have arisen from a difference in the animal operated on; and the latter gentlemen have not enabled us to judge who is in the right, not having published the details of their experiments.

The latest systematic writer on physiology, Magendie, concludes his account of the pancreatic juice, by simply stating, that nothing is known of the purpose it serves. It is to be feared, that the competition for the prize of the academy will hardly enable him to alter his opinion. MM. Leuret and Lassaigne have not attempted to assign to it any particular purpose in the process of intestinal digestion. Professors Tiedemann and Gmelin have not made any experiments to discover its use. But reasoning from the large quantity of highly azotized principles which it contains, they are led to infer, that its purpose may be to animalize the unazotized principles contained in vegetable food. It is a confirmation of this idea, that the pancreas is proportionally much larger in herbivorous than in carnivorous animals. And it is likewise worthy of notice, that the proportion of albumen, caseine, and matter precipitable of a red colour by chlorine, diminishes in the contents of the small intestine as they proceed downwards.

ART. VIII.—*An Essay on Morbid Sensibility of the Stomach and Bowels, as the proximate cause or characteristic condition of Indigestion, Nervous Irritability, Mental Despondency, &c. &c. to which are prefixed Observations on the Diseases and Regimen of Invalids, on their return from hot and unhealthy Climates.* By JAMES JOHNSON, M.D. of the Royal College of Physicians, &c. London: Printed for Thomas and George Underwood, 32, Fleet Street, 1827. 8vo, pp. 128.

THOUGH the general prevalence of diseases of the alimentary function, among all classes of society, is one of the most frequent and trivial topics of medical declamation, it is certainly one which neither daunts the courage of the author, nor fails to rouse the curiosity of the reader.

The excuse, therefore, which Dr Johnson seems to anticipate for the publication of the present essay, is equally unnecessary as the apology, of which he avows his resolution not to avail himself. Independent of the affectation of all apologies, where the author has a fixed determination of publishing, neither the number nor the ability of the rival candidates for attention, can render any excuse necessary, where the subject, though trite, is of general and permanent interest, and where, though much discussed, its difficulty and complexity demand new or modified theoretical views, and improved or modified practical measures.

Nor is it more requisite for Dr Johnson to extenuate the sin of publication, by reminding the reader, that his book, if bad, is not large. The favourable reception which his writings have hitherto obtained, rendered any allusion of this description uncalled for.

These remarks are particularly applicable to the case of the present work. It is neither so indifferent as to require any apology, nor are the subjects which it discusses, though common-place enough, treated in such a manner as to render it either superfluous or devoid of interest. On the contrary, though the author follows the same tract with Dr Saunders, Mr Abernethy, Dr Wilson Philip, Dr Paris, and many others of inferior note, yet on many points he gives views which are not only original and ingenious, but bear marks of being strictly true and well founded. One circumstance ought to procure it the attention not only of physicians but of patients. The materials of the essay are drawn entirely from personal observation, and not a few of them from personal suffering; and if the author has doubted the truth of some popular opinions, and differed on the kind and extent of the therapeutic measures to be adopted, he has done so on the results of experience only.

A general idea of the contents of the work may be obtained from the title-page. In the first part, on the diseases and regimen of invalids from hot climates, Dr Johnson treats of disease of the lungs, of the liver, and intestines, occurring in such invalids, and on the means of preventing or removing them. In the second, he undertakes to prove, that the various forms of stomach complaints arise from morbid sensibility of the stomach and bowels; he investigates the operation of the various physical and moral causes, which tend either separately or jointly to derange the process of digestion; he traces the origin and growth of that combination of mental and corporeal disorder, denominated *hypochondriasis;* and he closes his work with a full and minute view of the best method of treatment by dietetic means, by medicinal measures, and by the judicious employment of physical and moral agents, applied so as to operate as remedies.

It is quite unnecessary, and by no means our intention to enter into a formal analysis of the work of Dr Johnson. Though the style is somewhat diffuse, yet the matter is so much condensed, that any abstract, which should do it justice, would, if much shorter than the volume itself, be still too lengthened for our pages. With some observations, therefore, on a few of the most peculiar and important of the subjects discussed by Dr Johnson, we shall commit the more full study of the volume to that curiosity, which we doubt not our readers will feel to peruse it.

A form of disease, not uncommon to invalids returning from a tropical climate to this country, is that of affection of the lungs, either produced or aggravated during the homeward voyage, and, perhaps after return to this country, distinguished for its variable climate, and not unfrequently, for severe winters and chilling springs. Though in many instances this may be symptomatic of disease in the gastric or gastro-hepatic system, yet if it is neglected, it becomes actual disease of the lungs, or of their bronchial membrane, and requires as much attention as an idiopathic inflammation of these parts. To the nature of these complaints, Dr Johnson forcibly directs the early attention of the medical adviser, in due season, to prevent irreparable injury in the organs of respiration.

"Many valuable lives," he remarks, "are annually lost by treating these complaints as purely symptomatic, when they have actually become fixed diseases in the lungs or other parts within the chest. When the disease has passed the boundary, and become independent of its original cause, which it not unfrequently does, then I maintain, from the most unquestionable evidence, that it is aggravated, rather than alleviated by the remedies employed for the cure of the original complaint. Modern investigations (auscultation and percussion) have now given us the means of ascertaining with the greatest accuracy, whether there be or be not organic affection of the lungs or heart. The medical practitioner, therefore, who has the charge of the invalid on the voyage, or who first sees him on his reaching Europe, should not neglect to examine the chest most scrupulously, wherever there is cough, difficulty of breathing, or irregularity in the circulation; and, if any disease be detected there, the hepatic or stomach affection should be made quite a secondary consideration, and every effort should be used to remedy the more dangerous malady that has supervened. A few days exposure to a cold or variable atmosphere may render the *latter* incurable, and, therefore, seclusion in a regulated temperature should be enjoined, while local bleeding, blistering, and antimonials, are substituted for mercurials, and other measures pursued for the cure of the abdominal disorder. The invalid should be recommended to confine himself to his cabin, if on the voyage; or within doors, if landed, in the most sheltered situation which the country can present. It is really lamentable to see men returned from a tropical climate, walking about the streets of London, or going to places of amusement in the cold raw evenings of winter, while the hacking cough, emaciated figure, and variegated countenance, proclaim a condition of the lungs which ill comports with this exposure to the vicissitudes of a northern climate." Pp. 23, 24.

He afterwards insists upon the necessity of stethoscopic examination of the chest to ascertain the state of the lungs, and the probability of the successful use of remedies.

"In those cases where the cough is purely symptomatic, and where there is no other disease of the chest, the sound will be clear in all parts, and the air will be heard permeating the parenchyma (the author means the air-vesicles) of the lungs in every direction. In several instances where I have lately examined the chest, and where there were only the phenomena of sympathetic affection, I have found some portions of lung, especially in the left side, where no respiration could be heard, and where the sound was quite dull. By blistering, antimonials, colchicum, and seclusion, these points have regained their integrity of function, and the sound has returned. Hence I am led to conclude, that one of the first changes that take place, where symptomatic is passing into structural disease, is a condensation of the parenchymatous substance of the lungs, by no means incompatible with restoration. It is probable, however, that the *very first change* is that of *irritation* of the mucous membrane of the trachea and bronchia into a low kind of *inflammation*, with a corresponding change from a dry cough to one with some slight expectoration. Condensation or hepatization, as it is called, is probably the next change, and this supposition is, I think, strengthened by the fact, as ascertained by the stethoscope, that *hepatization* is the most common of all organic affections which we find in the lungs of people somewhat advanced in dyspeptic phthisis. In the ulterior stages, the lungs present, of course, on dissection and auscultation, the same phenomena as in regular idiopathic phthisis, so widely prevalent and so destructive in this country." Pp. 27, 28.

When the expectoration becomes puriform, whether from broken-down tubercles, vomica, or diseased bronchial membrane, he recommends the tonic plan by nutritious diet, with local depletion and counter-irritation.

"Three cases lately fell under my notice, where the expectoration was purulent—the pulse ranging from 110 to 140—with hectic fever and perspirations, and, in short, all the symptoms of established phthisis; and yet where the whole of these phenomena disappeared under the administration of the sulphate of quinine in well acidulated infusion of roses, aided by light animal food—sponging the chest twice a day with tepid vinegar and water, and obviating pain in the chest by blisters, antimonial ointment, and occasional leeching. This, too, was done without any other air than that of London, Pentonville, and Brompton." Pp. 29.

Some sensible observations on the best method of detecting disease of the liver, functional and organic, particularly merit the attention of those physicians who find an explanation of all the complaints of their patients in disease of that organ. There is little doubt that the liver is not nearly so often diseased as is asserted by physicians, and believed by their patients; but it is also matter of regret, that we have no very distinct means of ascertaining its morbid from its healthy states, until its structure is so much deranged as to be beyond the reach of art. Dr Johnson admits that the only certain mark of organic disease of the liver is "tangible enlargement of its substance;" and if this is well-founded, it may be safely inferred, that in 99 of 100 cases remedial management, medical or dietetic, or of any description whatever, is quite unavailing. This, however, is of less moment, if it be remembered, that for almost all forms of hepatic disease, whether functional or organic, the remedial treatment is much the same.

"Rigid abstinence, in respect to food, and a total abandonment of every kind of vinous and spiritous potation, act in a triply beneficial manner. This system diminishes the supply of nutriment to the morbid growth,—withdraws stimulation from an already irritated or inflamed organ,—and powerfully promotes the absorption of any interstitial deposit, or other preternatural growth in the biliary apparatus. The result is an improvement in the function of the organ, and a general amelioration of the health, if at all within the reach of amelioration.

"This is the fundamental principle of treatment in organic as well as in functional disease. All the others are subordinate, but many of them very important. There are medicines which experience has proved to be capable of increasing the power of the absorbents in the removal of morbid growths. The principal one is mercury; but it must be very carefully managed in organic diseases. Mercurial frictions over the region of the liver should be preceded by several repetitions of a smaller or greater number of leeches, according to the exigency of the case, and the strength of the patient. After ten days or a fortnight, the leeches should be re-applied—then a crop of pustules brought out by tartarized antimony—and then again, the original measures renewed. A succession of changes in this way, do a great deal more than a long continued course of any one remedial process. In the mean time, the secretions should be strictly attended to. Gentle bitter aperients, as rhubarb combined with extract of chamomile or gentian, may be given, and even the sulphate of quinine, when the appetite and digestive powers are weak. These means will enable the patient to take in and digest a sufficient quantity of light and unirritating nutriment to sustain the constitution, while attempts are made to reduce the unnatural structure in the liver." Pp. 38, 39.

On the above combination of remedial measures we shall merely remark, that, whatever reasons Dr Johnson may have for reposing confidence in the powers of mercury in the treatment of hepatic disease in general, that mineral exercises no favourable influence on the organic affections of the organ; and we have now seen more than one case in which its employment, as above recommended, unequivocally accelerated the fatal event.

The second and chief part of the essay of Dr Johnson, on the subject of complaints of the stomach and bowels, is distinguished by three peculiarities;—one in the opinion which he entertains on the pathological or proximate cause of these disorders;—a second in the influence which he ascribes to moral causes;—the third in the methods to be pursued, and in the extent to which they must be carried, in conducting the treatment.

All the derangements of the function of digestion, whether known under the denomination of indigestion, of dyspepsia, of bilious disorder, of vapours, of blue devils, of hypochondriasis, or *mimosis*, (Hall,) are to be ascribed, in the opinion of Dr Johnson, to an excessive or morbid sensibility of the gastro-enteric system. The stomach and bowels, he argues, in the natural state, though sensible to the ordinary stimuli of food and drink, do not, however, convey to the sentient mind any impression of the presence of such substances. Though possessed, in the language of Bichat, of an *organic sensibility*, by virtue of which, they at once act and are acted on by articles of food, yet they give no proof of *animal or common sensibility*; nor is the individual conscious of their operation, or the process which is carried on in their interior.

In the morbid state this is entirely altered. When the nature or the quantity of the *stimuli* applied to the interior of these organs is such as to derange their natural action, a variety of unusual sensations arises, which speedily proclaim the operation of noxious agents, and a consequent morbid state of the gastro-enteric nervous system. Digestion no longer goes on as if the individual were unconscious of it; but he is painfully made to feel that the stomach is quite as sensible as the eye, the ear, or the tongue.

The absence of those disagreeable sensations, or what may be termed *sensations of consciousness*, in the first case, Dr Johnson, like Bichat and others, ascribes to the circumstance of the stomach and bowels being supplied with nerves from the gangliar system, to which he ascribes the character of not conveying to the brain impressions within the range of healthy action. The occurrence of these sensations during disease is with equal facility ascribed to the circumstance of their being affected with unhealthy impressions. These impressions, even if long continued, may operate on the moral and intellectual faculties. They may depress the spirits, disturb the serenity of the temper, impair the reason, darken the intellect, and derange or subvert the whole mental economy. Dr Johnson, in short, conceives he is justified in concluding; "*first*, that from the stomach a diffusive energy and pleasurable feeling may be extended to all other parts of the body, and also to the mind, or at least to the organ of the mind, *without any distinct pleasurable sensation in the stomach itself*; and *secondly*, that from the stomach may be diffused over the whole system, intellectual and corporeal, a train of morbid feelings and phenomena, of the most distressing kind, with or *without* any distinct sensation of pain or uneasiness in the organs of digestion."

We do not propose to defend, and we are not inclined to scrutinize, the soundness of this doctrine. After the above statement of it, it is our duty to say, that it applies as well as any other to the subject, and, in the hands of Dr Johnson, assumes a very plausible and imposing appearance. Thus, he *not* only refutes the inferences regarding chronic inflammation, drawn by Dr Wilson Philip from the epigastric tenderness and hardness of pulse; but he does his best to overthrow the theory of Andral and Broussais on the softened state of the gastric mucous membrane, as the result of chronic inflammation, and the pathological cause of dyspeptic symptoms.

The second peculiarity in the essay of Dr Johnson, is the great influence which he ascribes to moral causes in the production of dyspeptic disease. This is a subject to which the author had formerly directed his attention, and on which he showed a good deal both of observation and reflection. Little doubt, we believe, can be entertained of the mutual action and reaction of the moral feelings on the corporeal constitution, and especially on those parts in which the function of digestion is performed. But the extent to which it takes place in individual cases, or the means by which it is carried on, are, if not utterly unknown, at least highly conjectural and imaginary. It is, therefore, superfluous to dwell longer on the subject; and the reader shall not be deprived of the pleasure of studying, in Dr Johnson's own language, his opinions and arguments on this point. It is sufficient to say, that the author ingeniously and naturally enough employs his views on this subject to explain the formation and phenomena of hypochondriacism.

A third peculiarity in the matter of the essay before us consists in the kind and degree of curative measures which Dr Johnson delivers and endeavours to impress both on the physician and patient. This is by far the most important and the most valuable part of the book. Whatever opinion be entertained on the hypothetical parts of the essay, and people will maintain different opinions from that of the author on their value, we have no hesitation in saying that one only ought to be held on this topic; and that Dr Johnson cannot render a more essential service to the dyspeptic, to the hypochondriac, or to the bilious invalid, than in forcibly impressing on the mind of the physician the harm that is daily done by the injudicious use of nutritious food and tonic medicines in the treatment of their respective cases. He insists most rigidly on removing the morbid irritability of the stomach by the entire removal of all stimuli, either of food, of drink, or of medicine; and on confining the patient to the use of plain and very easily digestible food. "I have known dyspeptic patients gain flesh and strength," says he, "on half a pint of good gruel thrice in the twenty-four hours, and gradually bring the stomach step by step up to the point of digesting plain animal food and biscuit. On six ounces of animal food, a biscuit, and a glass of water, I have known invalids dine for months in succession, and attain on this regimen a degree of strength and serenity of mind beyond their most sanguine hopes."—P. 10.

The reason of all this is not difficult to comprehend. Whatever opinion be entertained regarding the proximate or pathological cause of dyspeptic symptoms, it cannot be doubted, that, in 19 of 20 cases, the disease depends on the absurd and pernicious practice of giving the stomach more to do than it is able to accomplish. When this is done, no sooner does the offended organ proclaim the outrage inflicted on its delicate organization, and announce by the usual signs that its native energies are inadequate to struggle with the excessive duties required of it, than stimulating medicines, under the name of tonics, are employed to rouse its flagging powers; high-seasoned food is taken with the view of bringing it into good humour; and brandy and other cordials are recommended to support it in its weak and languishing condition;—or, it may be to prevent fermentation. The effect of each and all of these measures is one and the same. Instead of communicating strength to the stomach, they actually rob it of the little that remains. Stimulants, tonics, and condiments, may excite a temporary and excessive action, but never can add to the real natural strength of any organ; and indeed it is doubtful whether by temporary over-excitement they do not actually impair the powers. Yet such is their immediate effect, that the unhappy patient, when he feels that they enable him to devour a greater quantity of food than his unassisted organs could do, perseveres in the pernicious delusion, and daily, and at every meal, aggravates his complaints by this preposterous management.

So thoroughly have we been long convinced of the injurious tendency of this mode of treating dyspeptic symptoms, that, far as Dr Johnson has gone in censuring the system, we would venture a step farther. The tea-spoonful, or the table-spoonful, or the wine-glassful, of brandy, no matter which, even with water, might not only be dispensed with, but advantageously abandoned. The poultry and game, which he allows, we presume for the purpose of meeting half-way the tonic-givers and patients with fastidious stomachs, are not only unnecessary indulgences, but directly injurious to dyspeptics. How many a man would never have become bilious, would never have felt *acid in the stomach*, and never have known the oppressive load of a hypochondriacal frame, had he never been tempted to exchange the simple fare of early life for the delights of a luxurious dinner and its accompaniments. If to the advice given by Dr Johnson we could add any thing to increase its force, we should say, that without attention to diet and very considerable restraint, all medical means are useless, and even the effect of exercise itself is much impaired; while moderation in this respect renders medical remedies almost unnecessary, and enables other measures to operate with much more certain benefit. Without this restraint in the use of food and drink, the combination of moral and physical remedies in travelling, so judiciously and happily recommended by the author of the present essay, will, if not utterly unavailing, at least be greatly abridged of its powers; whereas attention to moderation will invariably effect a cure in the numerous cases in which this agreeable but expensive remedy cannot be employed. No dyspeptic need to long for the means of curing his disease by a journey either through France or Italy, if he possess sufficient firmness to moderate his allowance of food and drink to the real capacities of his stomach, and unite with this the advantage of regular exercise at home. To such we would address the sentiments used by the poet on an occasion not very dissimilar.

> Coelum non animum mutant qui trans mare currunt;
> Strenua non exercet inertia; navibus atque
> Quadrigis petimus bene vivere. Quod petis, heic est,
> Est Ulubris, animus si te non deficit aequus.

ART. IX.—*Review of some of the Surgical Cases which have lately occurred in the Royal Infirmary of Edinburgh.—A Clinical Lecture delivered to the Students of Surgery in that Institution, on the evening of Monday, 26th February* 1827. By GEORGE BALLINGALL, M.D. F.R.S.E. Fellow of the Royal College of Surgeons; Surgeon Extraordinary to the King; Regius Professor of Military Surgery in the University of Edinburgh; and one of the Surgeons of the Royal Infirmary.

IT is scarcely possible to conceive a greater difference to exist between any two things reputed to be alike, than there is between surgery as it is taught in books and lectures, and surgery as it appears in actual practice. In the former it is clear, simple, and as intelligible as description and demonstration can render it. In the latter it is too often obscure, and complicated with numerous petty accidents, which may not be anticipated, and which it is not always possible to prevent. In the one case it is the duty of the teacher or of the author to divest the subject of all those accessary circumstances which tend to divert the attention and perplex the judgment of the student, and to confine himself chiefly to the generalities of the subject under discussion. In the other case, the subject is presented as it occurs in nature, on some rare occasions, simple, clear, and intelligible; but much more frequently obscured by contradictory symptoms and indications, and complicated with capricious circumstances, which set the application of all general principles completely at defiance. Whether the attention is directed to the treatment of any of these diseases commonly committed to the care of the surgeon, or to the more brilliant and imposing business of manual operation, the difference is equally striking; and it may be so considerable, that unless the student is in some degree prepared for it, it may lead into the most painful and perplexing embarrassment.

The obvious remedy for this evil is, that gradual acquaintance with the circumstances and accidents of individual cases, which can be acquired by practical observation only within the wards of an hospital. Here the student learns to apply the general principles he has acquired elsewhere to the features of particular cases as they occur; he discovers to what extent they admit of application; and he acquires that invaluable information which no lectures can give, no books can convey;—the faculty of recognizing and managing those anomalies which occur no where but in actual practice.

It must be quite superfluous to say how much this important business is facilitated by the instructions of the clinical surgeon: If there is one office which is more necessary than another in the education of the surgical practitioner, it is that of pointing out to him the circumstances which peculiarly distinguish each case, and which demand one mode of treatment more than another. The practice of surgery is daily presenting cases, either in the progress of disease, or the result of accident, the circumstances of which deviate so widely from the ordinary course, as to render much of the information of the systematic teacher inapplicable. It avails not to say that such cases are rare, or exceptions to the general run. Granting this to be the fact, the mere circumstance of their occurrence proves the necessity of giving them some attention. It is one of the principal advantages of clinical instruction, that cases of this description must come under review; and though the consideration of such cases is assuredly not the most important part of the duty of the clinical lecturer, still his duty would be incomplete if they were entirely neglected. In short, as it is the great business of the clinical instructor to consider the peculiar circumstances of individual cases, so he is often most profitably and usefully employed in investigating those anomalous examples of disease, and those unexpected results of operation, the consideration of which comes not within the province of the systematic teacher.

These observations are mainly suggested by the short, but not unprofitable publication now before us. The last of a series of clinical lectures delivered in that place, from which there are few British surgeons who have not derived instruction, and of the lessons of which we are not ashamed to say we retain a grateful recollection, it consists of a review of about a dozen of anomalous cases of surgical disease and surgical operation, occurring during the last clinical course in the practice of the Royal Infirmary of this city. These cases are not, we must premise, of the kind denominated *interesting*, in the ordinary sense of this term. There are no cases of strangulated hernia, no cases of lithotomy, none of large tumours extirpated from dangerous or critical situations, none of aneurism, and one only in which an arterial tube was tied, and that, perhaps, one which the student after his first course of dissection might have easily attempted. If it is asked therefore, wherein consists the value or utility of these cases? it may be answered,—simply in their being cases of ordinary surgical disease, yet distinguished by certain anomalies, which the surgical practitioner must occasionally expect to encounter; and for the prompt management of which he will feel some comfort in being prepared.

It will not, therefore, be matter of wonder, if we recommend these cases to the attention of the surgical practitioner, as strongly as we would those which require the performance of capital operations. The latter, indeed, are so attractive to the majority of students, that they rarely fail to be carefully studied and thoroughly understood; while mere surgical diseases, and cases requiring small operations are deemed so easy, or so insignificant, as to be safely treated with a very moderate share of regard. Dr Ballingall, therefore, by directing the attention of the student to the less imposing, but not less useful cases, has performed a service of no small utility. In short, we take the present opportunity of saying, that we know no kind of medical publication so useful, whatever be its form, as that of the reports of hospital practice; and we cannot help regretting, that we have not more of the present kind of writings, especially from an institution, the records of which are preserved with so much care.

The lecture contains the principal circumstances of the following cases. One of urethral *ischuria* from injury done the perinæum; three of the operation for hydrocele; one of double-flap amputation; one of single-flap amputation; three cases requiring the operation of laryngotomy; an instance in which white-lead ointment, used in dressing an extensive burn, was followed by symptoms of painters' colic; a case of wound of the radial artery, requiring ligature of the humeral; and a fatal case of urethral ischuria, requiring puncture of the bladder.

In the first case, the impediment to the expulsion of the urine indicated the use of the bougie, simple and armed; while a hard swelling of the perinæum was very properly treated by incision, which had the effect of removing it completely. When the use of the common metallic bougie, however, was resumed with the intention of removing permanently the contraction of the urethra, the patient, a boy, in a fit of ill-humour left the hospital, and thus prevented the completion of his cure.

Of the cases of hydrocele, the first demonstrates the candour of Dr Ballingall, a qualification as essential as any in a teacher. The usual injection, after being thrown into the vaginal coat, did not return completely on opening the orifice of the canula; and an incision was made into the cellular substance in which it was supposed to be lodged. No fluid however escaped; and it was only when a membranous bag, which protruded from the wound, was punctured, that the greater part of the injection was discharged. Though some sloughing took place, the man did well. "As to what may have been the cause of the obstruction to the discharge of the liquid in the first instance, I have not been able to satisfy myself, nor am I, of course, able to explain it to you. I am not disposed to enter into any hypothetical explanation, the reality of which it is impossible to establish. I should be sorry to hint at any explanation which can possibly mislead you, or which could be construed into an attempt to screen myself from any supposed error; but I will confidently repeat the assertion which I formerly made in regard to this case,—'it was not an instance of an accident not very uncommon,—it was not an instance of the injection having been thrown into the cellular membrane of the scrotum.' Had it been so I could have had no difficulty in explaining it; and if I know myself, I should have shown as little hesitation in avowing it."

The cases of flap-amputation give rise to some good remarks on the merits of that mode of operating, and on the comparative advantages of sutures and of adhesive plaster in the union of incised wounds.

Two of the cases requiring the larynx to be opened are valuable for contrasting the facilities and the difficulties which may attend that operation. Both were fatal, apparently from the powers being too much exhausted before the operation was performed.

In the third case, after a ragged wound dividing the lower part of the larynx, inflicted in an unsuccessful attempt at suicide, had been nearly healed, symptoms of laryngeal inflammation came on with such rapidity and violence, as to threaten immediate suffocation. A vertical incision into the larynx, from the site of the original wound, through the cricoid cartilage, relieved the urgent symptoms, and, with the use of general and local bleeding, rescued the patient from death. It was found inexpedient, however, to close the wound; and the woman left the hospital with a silver tube in the windpipe, through which she breathed.

The case of wound of the radial artery is useful in showing the influence of the collateral branches, in keeping up hemorrhage from that vessel, though tied above the wound, and the necessity, in some instances, of securing the main trunk.

On this case Dr Ballingall makes the following observations, with which we shall close the present article.

> "This case forces strongly upon our minds the singular revolution which has taken place in the opinions of surgeons relative to the ligature of arteries within the last sixty years. *They* were formerly afraid to tie any considerable artery, for fear of mortification of the limb; *we* are now apprehensive that the ligature of a main trunk may prove insufficient to suppress a hæmorrhage from one of its minor branches: 'When the brachial or femoral artery is wounded, though the patient should not perish by the hæmorrhage, the limb must soon die for want of nourishment.' This was the language of Gooch in 1767, 'When circumstances tending to prevent the establishment of a collateral circulation do not exist, we need not apprehend the death of any part in consequence of a deficient supply of blood after the ligature of its main artery.' This was the language of Hodgson in 1815; and if you look into the accurate and instructive work of this author, you will find a case in which the ligature of the brachial was found insufficient to suppress a hæmorrhage from this same unlucky radial artery; the wounds of which, I may safely assert, have given more trouble to surgeons, and proved more disastrous to patients, than those of any other artery of a corresponding magnitude in the system. Surgeons have sometimes been made to pay in purse as well as in person for the mismanagement of such cases. Of this I recollect a remarkable instance which occurred in a provincial town in England, not many years ago, where a surgeon was prosecuted and cast in damages at the suit of a cooper, who had lost the use of his arm, and was disabled from following his trade in consequence of the tight bandaging employed to restrain a hæmorrhage from the radial artery. This case was strongly impressed upon my recollection by a very extraordinary coincidence; while reading the newspaper report of it in the mess-room at Nottingham, where I was then quartered with the 33d regiment, I was called to the assistance of a soldier who had accidentally wounded his radial artery in whetting his razor; and having the fear of tight bandages fully before my eyes, I of course proceeded to secure the wounded vessel with ligatures."

We may be permitted to express the hope, that the example of Dr Ballingall in the present publication, will be followed by the other surgeons attached to the institution.

ART. X.—*Elements of Chemistry, including the recent Discoveries and Doctrines of the Science.* By EDWARD TURNER, M. D. F. R. S. E. Fellow of the Royal College of Physicians, and Lecturer on Chemistry, Edinburgh; Corresponding Member of the Royal Society of Gottingen, &c. Tait, Edinburgh, 1827. Pp. 714.

AS it is impossible to analyse this work, it would be an injustice both to the subject and to the author to do more than announce it. Private considerations, which Dr Turner knows and can appreciate, must likewise prevent us from announcing it in the terms of eulogium, which, under other circumstances, we are always happy to employ in submitting to our readers works thought deserving of their attention.

We presume, that the student, whom we would in the first place, and most particularly address, has for some time felt the want of an elementary work on Chemistry. For the elements of Dr Murray, the only strict treatise of the kind that has ever been much in the hands of the students, at least of this place, have become almost obsolete, by reason of the manifold improvements which have been made since his time in all departments of the science, and especially in the department of Organic analysis. This want the present treatise is calculated fully to supply. In his statement of facts, and in his exposition of theories, the author has never lost sight of the capabilities of the learner,—an object which his experience in teaching has enabled him to hold easily in view. In this respect, he has been peculiarly successful, when he discusses the more abstruse topics of the science, and above all the important and difficult subject of the Atomic Theory. This subject, which we know students are often in the habit of passing by, in consequence of exaggerating to themselves the difficulty of comprehending it, was very well elucidated by the author in a separate publication about a year ago; and the contents of that publication are now embodied in the present.

To the practitioner who desires to retain and extend his knowledge of chemistry as the science advances, and to apply it in practice to the diagnosis and treatment of disease, Dr Turner's Elements will, for similar reasons, be found particularly useful. The utility of chemistry to the practitioner in aiding him in his pathological investigations is becoming every day more and more apparent, according as the deductions of organic analysis become more and more precise. To this department Dr Turner has been naturally led to pay special attention, as his book amply testifies.

This, however, is not yet all; for the experienced chemist cannot fail to remark that it constitutes a concise, faithful, and comprehensive digest of all the valuable facts and doctrines of his science,—and that the processes, recommended from personal trial, bear the marks of a careful, accurate, and ingenious experimentalist. Dr Turner, we need hardly add, is already well known as such by his writings in the periodicals of the day.

The arrangement he has adopted is philosophical, and easily comprehended at a glance. The details bring the reader completely on a level with the most modern discoveries and improvements in chemical science.

We are not aware of any other qualities that are required for an elementary treatise; and we know we only speak the opinion of the best qualified judges in recommending it implicitly to the public.

ART. XI.—*Manual of Pathology; containing the Symptoms, Diagnosis, and Morbid Characters of Diseases; together with an Exposition of the different Methods of Examination, applicable to Affections of the Head, Chest, and Abdomen.* By L. MARTINET, D. M. P. Resident Physician of the Hotel-Dieu. Translated, with notes and additions, by JONES QUAIN, A. B. Demonstrator of Anatomy at the Medical School, Aldersgate Street. London: Printed for John Anderson, 40, West Smithfield, 1826.

WE notice this small but well-stored and judicious compendium for the express purpose of recommending it to the hospital-pupil and clinical student, for whose use chiefly it has been composed. It consists of two parts, the first on the mode of examining patients and their symptoms, the second on the mode of distinguishing diseases from each other.

In the first part, the author explains minutely, at the same time clearly, the principal circumstances in the history, symptoms, and appearance of the patient, to which the student is to direct his attention in discovering the nature of the disease under which he labours. He enumerates all the changes which take place in the functions and actions of the living body which it is necessary to observe; and he describes fully the manner of examining the head, chest, and belly, and of ascertaining whether the state of the examined organs be sound or diseased. The use of the stethoscope, and of percussion in examining the heart and lungs, the mode of examining the discharges in intestinal disorders, of the urine in affections of the urinary organs, and the use of the speculum in affections of the uterus, are explained at length. Lastly, in this part M. Martinet treats of the best mode of conducting morbid dissections, and explains the different necrological appearances which may be expected in diseased states of the organs and tissues, in different regions of the body.

In the second part, the author treats of the diagnosis and pathology of diseases in the following order. Diseases of the brain and its membranes; diseases of the spinal marrow; diseases of the chest, comprehending those of the lungs, larynx, and windpipe; diseases of the heart and its appendages; diseases of the organs concerned in the process of digestion; diseases of the urinary and genital organs; diseases of the skin; cellular tissue; mucous membranes; of muscular, synovial, and fibrous systems, and vascular system; general diseases, as scurvy, syphilis, and scrofula; fevers, idiopathic and eruptive; and lastly, poisons.

In treating of each disease, M. Martinet first describes the symptoms, then selects the circumstances which are requisite to establish the diagnosis, and lastly, enumerates the anatomical characters. The whole is done with sufficient attention to detail and perspicuity, in order to instruct, without fatiguing, and yet in so short and small compass, that the memory may be easily stored without perplexing the judgment.

Had M. Quesnai of *political economy* memory been living he would have confessed that the epithet of *la Medecine collective*, with which he honoured the aphorisms of Boerhaave, was much more justly merited by the present compilation. We trust that the clinical student will see his interest in making it his constant hospital companion.

The translation is sufficiently clear and distinct; and some judicious observations are appended by the translator.

(Addition to the Original Communications.)

[*On account of the interest which the subject of the following Communication is now exciting, we have inserted it in the present place, and have consequently been obliged to defer other important matters till next number.*]

Account of the Medical Evidence in the Case of Mrs Smith, tried at Edinburgh in February last for Murder by Poison;—with Notes and Commentaries. By R. CHRISTISON, M.D. F. R. S. Ed. F. R. C. Phys. and Professor of Medical Jurisprudence and Police in the University of Edinburgh, &c. &c.

I HAVE been recommended to publish the following account of the trial of Mrs Smith; and I do so willingly, because, independently of other considerations, a very garbled and erroneous report of the scientific evidence has appeared in all the newspapers of this place which I have seen. The narrative will sufficiently proclaim the importance of the case to my professional brethren, without any introductory abstract. I would merely beg to call their attention, and that of the general reader also, to the striking coincidence among all the witnesses in regard to the chief points which came under their review—a coincidence which I believe has not hitherto occurred in any British case of the same complexity and delicacy.

MARY SMITH, a farmer's wife near Dundee, was indicted at Edinburgh on the 5th of February last for administering poison to Margaret Warden, her servant. When the trial had proceeded for eight hours, and most of the crown witnesses had been examined, one of the jurymen was suddenly taken ill. He was removed from court, and committed to the charge of three of the medical gentlemen in attendance as witnesses; and after being an hour in their hands, the following evidence was given as to his state.

DR CHRISTISON, *Professor of Medical Jurisprudence, &c. Examined by the Lord Advocate.* The disease which the juryman has had is epilepsy. He is now much better; the convulsions ceased some time ago; but his mind continues in a state of great weakness; his memory is very imperfect. I am rather unwilling to give an opinion as to what his state may be in the course of the night; but from his state just now I think it very improbable that in the course of an hour or an hour and a half his mind will be so far restored as that he could with propriety resume his place as a juryman. (1.) I should not be so much afraid of a return of the fit; at the same time he certainly would be more liable to have a return of it, than if he was kept quiet at home.

Dr Mackintosh, *Lecturer on the Practice of Physic, and on Midwifery, &c.*

Examined by the Lord Advocate. I have just left the juryman who was taken ill. He has had an epileptic fit; the convulsive stage was not severe; but his recovery from the subsequent stage of stupor is unusually slow; his memory is still weak. He may recover his state of mind in an hour; or not for six hours or more; but it is improbable he will be so well in an hour as with propriety to act as a juryman. Even though he should, it would probably be unsafe in regard to himself for him to resume his place. He would run a chance of having another fit. (2.)

After some conversation upon the technicalities of their judgment, and approving of the caution observed by the medical witnesses, the court found "that, in respect of the evidence now delivered by the medical gentlemen, it would be contrary to justice and humanity to proceed with the trial that day;" and postponed it accordingly.

On the 12th the trial was resumed; but the proceedings were confined to an argument by the different counsel as to whether it was legal to resume the trial under the circumstances. The Court found that it was (3.); and the prisoner was finally tried on the 19th, in presence of the whole Justiciary judges, viz. the Lord Justice Clerk, and Lords Gillies, Meadowbank, Alloway, Pitmilly, and Mackenzie. Twenty witnesses were examined for the crown, and sixteen more for the prisoner; and their examination, which was full of important evidence, lasted nearly fourteen hours.—A short analysis of the moral evidence will be sufficient for the object of this narrative.

Evidence for the Crown. The deceased was unmarried, twenty-five years of age, and three months gone with child,—the prisoner's son being the father. She had an illegitimate child four years before. A short time before her death she frequently spoke of her pregnancy to several of the farm-servants; and Mrs Smith too was aware of it, as she had herself discovered the intimacy between the girl and her son, and before the girl's death gave various people to understand she was acquainted with her state. After her death, however, when reports of her having died by poison were circulated through the country, the prisoner denied to every one that she ever had *any* such knowledge.

It was pretty well established, that, on more occasions than one, the prisoner, probably with the consent of the deceased, had given her drugs to procure miscarriage. They occasionally quarrelled on the subject of the deceased's pregnancy, but in general were on good terms, and they appeared to be so in particular about the time she took ill.

Nineteen days before the girl's death Mrs Smith openly sent a message to a surgeon of her acquaintance at Dundee for *poison* to kill rats; and on a Friday, twelve days afterwards, she as openly got it from him herself in a paper parcel marked *arsenic, poison.* In her first Declaration, taken twenty-four days after the death of the girl, she denied having ever got poison at any time, particularly on the Friday; but in a second Declaration taken next day, she admitted having got something from the surgeon to kill rats, because they were very numerous about the farm-steading, and had been much complained of by the servants. She declared, however, that she did not know whether the parcel was labelled, or whether it contained poison; and that she laid it for the rats in a particular loft, after mixing it up in Margaret Warden's presence. It appeared that rats really were once common about the place. But none of the farm-servants had seen any after last May, or complained of them to their mistress; none of them were told of poison having been laid,—not even the girl who had charge of the prisoner's grandchildren; and nobody heard any talk about rats till after the prisoner was apprehended. As to her having laid the stuff for the rats, none of the farm-servants ever saw any thing of the kind in the loft before the deceased's death, or till after the prisoner's commitment, when oatmeal was found sprinkled in the holes of the walls. (4.)

On the evening of the Tuesday after the poison was procured, and while Margaret Warden was sitting in the kitchen with a fellow-servant, Jean Norrie, preparing to go to bed, the prisoner entered with a wine glass nearly full of a "thick, white, mixed stuff." After remarking that she had just been taking her own share of it, she gave Norrie a little of it to taste in a tea-spoon, and then, without any other observation, presented the glass to Margaret Warden; who, likewise without saying any thing, swallowed the whole contents. This draught the prisoner afterwards told several people was castor oil. Another draught was administered by her on Thursday morning, which she also afterwards said was castor oil; but there was no other evidence as to its nature.

During the illness of the deceased, she several times dropped strong hints to her companion Norrie, that she thought her mistress had given her drinks to hurt her; on the morning before her death, when she knew she was dying, she repeated these hints.

more strongly in presence of Norrie, another servant, and her own mother; and finally, on being questioned by her mother, when alone with her, she declared Mrs Smith was the person who gave her what had made her ill.

Various other minor particulars likewise transpired with regard to the behaviour of the prisoner, such as—her becoming on a sudden violently agitated during her examination at the moment she denied having procured poison,—her apparent acquaintance with some of the properties of acrid poisons,—her contradictory and false versions of the cause of the deceased's death, &c. But these it is unnecessary to particularize farther.

EVIDENCE FOR THE PRISONER. It has been already mentioned, that rats had once been common about the farm-steading. They had in fact been destroyed by a rat-catcher in 1825, and were numerous in the succeeding winter.

A boy, whose name and residence were not learned, had tried to purchase arsenic in the neighbourhood not long before Margaret Warden's death.

But the most important circumstances in the prisoner's favour were, that the deceased had lamented to various people her state of discomfort on account of her inability to work, and her reluctance to go to her mother's, who had refused, she said, to admit her into her house;—and that not long before her death she repeatedly declared in a serious manner to several persons her resolution to destroy herself. The only part of this evidence which was shaken by the evidence for the crown, related to the alleged conduct of the mother. For not only did she never refuse to take her daughter home; but likewise the girl, shortly before her death, and when her mother knew her state, had actually been eight days at home, on account of her inability to work, and was taken back by the prisoner in person. No poison was found about the deceased's bed; none could be traced into her possession even presumptively; and throughout her whole illness nothing occurred in her behaviour to lead those around her to form the slightest suspicion that she had poisoned herself.

After this introductory sketch, I shall now proceed to relate the medical evidence. It embraced two very different questions;—*First*, the soundness of the prisoner's mind when she underwent her examinations and prevaricated so much;—and, *Secondly*, the cause of Margaret Warden's death,—whether she died of poison?—whether she took poison on Tuesday?—whether what she took on Tuesday was the fatal dose?—whether the poison she took was the same with that procured a few days *before* by the prisoner? &c.

The counsel for the crown were, *the Lord Advocate and*

Messrs Dundas and Alison; for the prisoner, *Messrs Jeffrey, Cockburn, and Menzies.*

I. *Evidence regarding the prisoner's state of mind when her declarations were taken.*

The prisoner's counsel objected to the admissibility of her Declarations as evidence, that they were taken soon after a violent fit of hysteria, when she was in a state of mind that rendered her not fit to be examined; and the following was the proof to that effect.

MARGARET SMITH, *one of the crown witnesses, examined at a previous stage of the trial.*

Cross-examined by Mr Cockburn. I am wife of Mr Smith's brother. I saw Mrs Smith on the Sunday, the day before she was examined by the Sheriff-substitute. I was sent for, because she had been taken badly. I found her ill—she could not speak to tell me what was the matter with her—she was in a nervous complaint—in the hysterics. I staid till nine next morning, at which time she was a little better, but still in bed. I have taken her out of church in such attacks before. The fit always produced a weakening effect on her mind—rendered her insensible, so that she did not know she was in church; and this effect remained some time after the fit. I have seen her unable to speak correctly on the second day. The fit on Sunday was a violent one. When I left her on Monday morning, she seemed to be in a confused state—her mind was not quite composed. Mr Alexander, a surgeon, was sent for on Sunday night and saw her. He left the house before me.

Cross-examined by the Lord Advocate. The prisoner when she recovered from one of those fits was equally confused on every subject. While in the fit, she could not speak at all.

Mr ALEXANDER, *Surgeon.*

Examined by Mr Jeffrey. I am a surgeon in Dundee, and have been in the practice of attending Mr Smith's family for five or six years. On the night before Mrs Smith's examination I was called from bed to see her. I reached Denside about one in the morning. After my arrival she was for some little time in a state of stupor, unable to speak, and altogether like a person recovering from epilepsy. When she did at length speak, it was incoherently. It was a violent nervous attack which she had; and I treated it as such with antispasmodics. I left her at five, and at that time she was far from being recovered: I don't think she was at that time in a fit state to be examined as a person accused of a crime.—In such cases the subsequent effects may remain long,—so long as forty-eight hours; but the period is very various. In such cases the recovery is generally gradual, so that a person may be so far recovered as not to mistake illusions for realities, and yet be very far from well. Loss of memory for a time is a common consequence. Hysteria very often arises from suppression of the menses.—I saw her again on Monday evening in jail. She was not thoroughly collected even then, and had a very indistinct recollection of what happened at my first visit. The relations assigned, as the reason for her illness on Sunday, that she had got a great fright that day in consequence of one of her grandchildren being nearly drowned. Between the two occasions on which I saw her, she certainly could not have been perfectly recovered;—I do not think she could have been so well as to answer questions properly.

Cross-examined by the Lord Advocate. According to my experience, it was impossible she could have recovered so thoroughly in the interval as to be in a fit state to undergo an examination. (5.)

By the Lord Justice-Clerk. When I left her at five in the morning she was labouring under what might be called a fit of hysteria.

By Lord Meadowbank. The pulse was slow when I first visited her (6.); her skin was covered with a clammy sweat; and she was incapable of being roused so as to speak. When I left her the pulse was more natural,—nearly natural.

By Mr Alison. I gave her on Sunday aromatic spirit of ammonia and tincture of lavender; which I carried with me in consequence of information given by the farm-servant, who came to my house for me. I never saw her in a fit before Sunday.

Mr Crichton, *Surgeon.*

Examined by Mr Jeffrey. I am a surgeon in Dundee. I visited Mrs Smith in Dundee jail one day last December. I was sent for, because she had convulsions and foaming at the mouth. When I reached her, she was screaming out, sometimes from pain in the head, sometimes from pain in the side; people were holding her and applying hot cloths; and she spoke incoherently. At first I thought she had violent hysteria; but subsequently on reflection I considered it was liker epilepsy (7.) She was not at that time in a state to give an answer which could be depended on; and even at the end of the third day she had not recovered so far as to do so. During that interval she was occasionally in a torpid state, easily roused, however, but not so as to speak correctly. I afterwards learned she was liable to such attacks at each menstrual period.

Cross-examined by the Lord Advocate. I never to my recollection attended her in such a fit before. The pulse was languid and slow during the fit. (6.)

By Lord Meadowbank. I cannot say whether it varied. The countenance was never livid.

By the Lord Advocate. I could not tell what was the state of the skin, as most of her body was covered with fomenting flannels. If I was to describe her state on the second day precisely, I should say, that she would give distinct answers for some time, but at length gradually wander from the subject. She was likewise at times delirious, so that even when her answers might have been correct I could not depend on them.

I had not any reason then, nor have had since, to doubt the fit was real. The first day she certainly was not in a proper state for undergoing a long examination before a magistrate. (Permission was here asked by Mr Menzies for Mr Crichton to use notes of what he observed on the 7th, 8th and 9th December, but not written till the 16th. The proposition was resisted by the Lord Advocate on the ground that the notes were from memory merely; and was finally dropped.) I did not see her early next day, as I was given to understand she was better. In the course of the day, however, I understood she got worse, and I called in the evening. She was in bed, certainly better than the day before; but I do not think she was able to undergo an examination at that time.

Re-examined by Mr Jeffrey. I would not have advised removing her in a post chaise at that time: It would have been a cruel thing.

By the Lord Advocate.—I had no suspicion at the time of her feigning. I did not apply any test to settle that point.

By Lord Mackenzie. In the after part of the second day any medical man must have seen she was unfit to undergo an examination, or to be removed. I have seen many cases of hysteria.

By Lord Meadowbank. The convalescence from a hysterical fit is very various in the same individual, and is slow in proportion to the severity of the fit. (8.) This was a severe fit.

Mrs Malcolm.

Examined by Mr Jeffrey. I am sister of the prisoner. I remember my sister having been apprehended. I saw her at Denside at eleven of the morning of the same day. She was in bed, and was irregular in her courses; she had had the same complaint for three months before. She was incoherent in her speech when I saw her. She fainted three times while I was dressing her to go with Dr Johnston to Four-Mile-House.

Cross-examined by the Lord Advocate. Dr Johnston was in the house at the time, but I did not call him to her. My reason was, that she had often been as ill before. I did not afterwards tell him she had fainted. Other members of her family were in the house when she fainted: I did not call them. I was not present when Dr Johnston examined her.

CROWN EVIDENCE.

MR CHRISTOPHER KERR.

Examined by Mr Dundas. I am Sheriff-substitute for the Dundee district of Forfarshire. I took the prisoner's Declarations in October last. (*Identifies them.*) She was examined at Four-Mile-House instead of Dundee, because I was informed by a friend of hers that she was in a bad state of health. I therefore took Dr Johnston along with me to report on her state previous to her examination. The Doctor said that instead of doing her harm, going into the open air in a carriage would do her good. No objection was made to her examination either by herself or by her husband, who was present the whole time it lasted; nor was I ever told her mind had been recently affected. During her examination she was perfectly calm and collected, till she came to the last question, (which I now mark in the Declaration,) when, after it was thrice put by me and thrice answered, she became agitated, gasped, and fell back. I immediately started up, thinking she was unwell, when she as suddenly started up too, and said nothing ailed her.

She was again examined next day at her own desire, conveyed to me by one of her friends. None of her friends were present. Her first Declaration was read over to her; and she did not object to it as having been taken when she was in a weak state of mind, but merely said she wished to correct some errors in it, as she desired to tell the truth. On this occasion too she was quite calm and collected, and never appeared nervous or hysterical, so far as I remarked.

MR BAXTER, *Procurator-fiscal of Dundee, confirms every part of the foregoing witness's evidence, having been present at both Declarations.*

MR MACKAY, *Messenger-at-arms.*

Examined by the Lord Advocate. I am a messenger-at-arms of Dundee, and was present at the taking of the first Declaration. *Confirms every part of the evidence of Mr Kerr as to what took place then.* Her Declaration was read all over to her, and she observed it was all right. She was somewhat agitated in signing it.

JAMES YEAMAN, *Esquire of Affleck.*

Examined by the Lord Advocate. I am a county magistrate of Forfar. I went to Denside on the morning of the prisoner's examination, at the request of Mr Smith's brother, and was present at the taking of her declaration. I am interested in the family of Denside, as being my neighbours. I saw nothing in her state to prevent her being examined, and no objection was made. She was quite collected till she answered a question near the close, which I see marked in the declaration; and then she became agitated. I thought she became so in consequence of the putting of that question.

Dr JOHNSTON, *Physician in Dundee.*

Examined by the Lord Advocate. In September last I was requested by the Sheriff-substitute of Dundee to go to Denside, to see whether Mrs Smith would be able to go to Four-Mile-House, about a mile distant from her own residence. I found her in bed, not certainly in robust health, but with nothing to prevent her making the journey required, or her being examined. I had to put a great many questions to her; she answered them correctly; and I saw nothing wrong with her mind. Knowing the object of my being employed, I wished to have another medical man with me to divide the responsibility; but the law-gentlemen had room in their chaise for one person only. I accordingly agreed to go, but under the condition, that I should only certify if I had no doubt. Dr Ramsay was to follow if I thought it necessary. There was certainly an unwillingness on the part of the prisoner and her friends that she should go. But on representing to her that I should be obliged to report her able to go, I prevailed on her to do it without my having to give a report. Her husband and one of her sons accompanied her in the carriage; and I likewise went with her, as she made this a condition of her going. Not liking to be altogether silent, I began talking on indifferent subjects, not connected with the case,—when at length her husband remarked, that he little thought such a report would be raised against any of his family, who had always been so respectable,—but that there was surely something more in it than he knew of, "otherwise gentlemen would not be going into the country in carriages." Subsequently he observed he had heard we found something in the stomach of the deceased. I replied, certainly, we had found arsenic,—adding, that I hoped it would be proved neither he nor any of his family were connected with the administration of it; upon which Mrs Smith, who hitherto had said nothing, remarked, that the girl had had so much vomiting, that she did not think it possible any thing could have remained in the stomach. Mr Smith then said more than one of the servants had heard the deceased say she would make away with herself. (9.)—At Four-mile-House I asked Mrs Smith if she was any worse for the journey, and she replied she was not. She appeared in a perfectly fit state for examination at that time; had I observed any thing to prevent it, I should certainly have given my patient the advantage of it. I was not present at the examination. When she came out into the room where I was, I quitted it; but observed her as I passed, and did not think her appearance altered.

I examined the body, &c. (*See Part II.*)

Mr Jeffrey was then heard in support of his objection to the admissibility of the declarations; after which the Court, without requiring a reply from the Lord Advocate, found that they were admissible, and that it was for the jury to say, (after such comments as the Court would subsequently make in summing up the evidence,) what weight should be attached to them (10).

Part II.—*Evidence with regard to the cause of death, and the several questions connected with the administration and effects of arsenic.*

I shall introduce this division of the medical evidence with such an account of the symptoms as could be gathered from the testimony of the servants who saw the deceased during her illness. No medical man saw her till she was almost moribund.

On the evening of Tuesday, as was formerly stated, the deceased took nearly a wine-glassful of a thick white mixture; and at the same time her fellow-servant Norrie tasted a little of it in a tea-spoon, and swallowed it. This servant declared that it did not taste at all like castor-oil, that it had not an acrid taste, and that she never suffered any harm from what she took. She slept with the deceased, and never awoke during the night.

On the morning of Wednesday between five and six, Margaret Warden told her comrade Norrie, that she had not been so well as usual through the night; and not long afterwards, while sitting striking a light, she became suddenly sick and appeared about to fall from her chair; upon which Norrie led her to bed. During the rest of that day she was repeatedly visited at various times by Norrie and two other servants. None of them saw her vomit or observed any marks of her having vomited; and although she was evidently unwell, and complained to Norrie of pain in the bowels, she said to another servant about mid-day that she was better, did not complain to her of pain, and actually took for dinner and retained on her stomach a pint of milk and a flour-cake as big as a soup-plate.—I must add, however, that the prisoner in her declarations said the deceased had vomiting and purging on Wednesday, and that according to Dr Taylor, one of the medical witnesses, the deceased told him she had these symptoms both on Tuesday and Wednesday.

No evidence was procured as to her state from six on Wednesday evening till Thursday forenoon, except that, when Norrie awoke once during the night, she found the deceased awake also. It was on Thursday that she got the second draught from her mistress. On the forenoon of that day she was much worse, had excessive thirst, vomited a great deal, particularly when she drank any thing, purged frequently, and complained of severe burning pain in her whole bowels, but particularly in the side. These symptoms continued unremittingly till her death, which took place next day at nine in the evening; and on the morning of that day, when she was seen by Dr Taylor, she had also excessive prostration, occasional stupor, cold extremities, clammy perspiration, and a pulse imperceptible at the wrist and temple, and felt over the heart beating faintly 150 times in a minute. She never complained of sore throat, or of any urinary affection.

The body was buried on the 10th September, two days after her death; but it was disinterred and examined twenty days after that, in consequence of the reports raised against the prisoner.

Before proceeding to notice the evidence of the medical gentlemen, I must premise, that, at the request of the Lord Advocate, the witnesses, although allowed to be present at one another's examinations while the medical facts of the case were stated, were ordered to withdraw during the delivery of each other's opinions. (11.)

MEDICAL EVIDENCE FOR THE CROWN. (*Drs Rumsay, Mackintosh, Ffye, and Christison in court.*)

DR TAYLOR, *Physician and Surgeon at Broughty-Ferry.*

Examined by the Lord Advocate. I was sent for on Friday the 8th of September last to visit the deceased, and reached Denside about one in the forenoon. Mrs Smith met me at the door—accidentally, as I thought;—and taking me into the parlour, told me Margaret Warden had been ill since Tuesday night with vomiting, purging, and pain in the bowels. I asked if she had given her any medicine, and she replied—nothing but some castor oil; I understood her to mean she had given it during the girl's illness. I then asked why she had not sent for medical aid sooner: she said she had not been aware there was any danger; and added, that the girl was a light-headed cutty, on account of which, perhaps she had not paid her the attention she might otherwise have done. She said it was reported about the house, and in the neighbourhood, that the girl was with child, and asked if I should know whether it was the case, and if the vomiting and purging she had had would not have the effect of carrying it off, if there was one: I answered that it might, and might not; it was not a necessary effect. As I could not be troubled answering any more such questions, I cut the conversation short by requesting to see the patient. I went to the kitchen where she was. I entered just as she was at the close of a fit of vomiting; after which she lay down exhausted with the effort. Her countenance was sunken and ghastly; the whole body, and particularly the hands and feet, were covered with a cold perspiration; there was no pulse at the wrists or temples, and very indistinct pulsations over the heart,—about 150 in a minute. I tried to rouse her a little by speaking to her, and asked her when she was taken ill. After the question was twice put, she replied that she was taken ill on Tuesday night with vomiting, purging, and pain in the bowels, particularly in the side; I understood her to mean that these were the first symptoms. Next, wishing to satisfy myself regarding her pregnancy, I asked her when she had been in a particular way; and she answered, not for three months. There was evident fulness in the lower part of the belly. I found her in such a state of exhaustion, her replies so difficult, and her case altogether so hopeless, that I did not think it right to put any more questions. Her mother was at the bedside all the time I was there. I thereupon returned to Mrs Smith, and told her the girl was dying; and, in reply to a question of her's, said I made it a practice not to give medicine to one I conceived dying. She received this rather in an indifferent manner, without any expression of feeling for the approaching event,—remarking, however, that she feared the girl was dying, and that she had sent for a medical man to take the responsibility off her own shoulders. She repeated all her former observations. She again asked if I thought the violent vomiting and purging would carry off the child,—adding, that "she would not care though it did, for if the gudeman kent it, he would be like to tear down the house about them." I never said it was water in the chest that the girl had. The arms were more livid than natural. I did not say so to Mrs Smith.

Cross-examined by Mr Jeffrey. When I saw her, my impression was that she had cholera. The symptoms were all such as cholera produces: that disease was very prevalent in the country at the time.—At the request of Mrs Smith, I went to see a farm-servant who had a cold, threatening inflammation of the chest; it was not cholera he had. I had no idea at the time that the deceased was ill of the effects of poison.

Re-examined by the Lord Advocate. The farm-servant's name was Brown; I visited no other patient that day at the farm. The cholera in my part of the country never proved fatal sooner than fourteen days. The pain of cholera is acute, but can hardly be called a burning pain (12.) From the symptoms, the examination of the body, and the analysis of the contents of the stomach, I have now no doubt that she died of poison, and that the poison was arsenic. A report to this effect was drawn up by Drs Ramsay, Johnston, and myself: *Identifies and reads the report.*

It stated, that the body was disinterred and examined on the *30th* September (twenty-two days after death,) in the church-yard of Murroes,—that there were marks of considerable putrefaction externally,—but that the stomach and bowels were in a state of "wonderful preservation." The stomach, externally, was every where painted with red vessels, bright red in most parts, dark red in other parts. The omentum was in the same state, especially at its base. The small intestines were likewise reddish, in many parts contracted in diameter and corrugated; and the mesentery at these parts was inflamed. The inner coat of the stomach "was raised up, in many parts separated from the adjoining coats, in others corrugated or abraded in irregular circumscribed patches, with a raised mark, formed by the other coats. The inner surface seemed as if it had been seared with a hot iron, the coats being drawn together in a very singular manner (13.) In one part there were large patches of a coal-black colour, confined entirely to the villous coat." There were no such marks in the small intestines, the inner membrane of which, however, bore otherwise the same appearance as the stomach.

The stomach contained ten or twelve ounces (14) of a thick fluid, with yellow particles floating in it. Similar particles were adhering to the villous coat, and at some points were deeply imbedded in its substance. At these places the membrane, except in colour, looked like a fine texture corroded by lunar caustic; and around one spot there was a bright areola. Besides the yellow particles, a white powder was scattered over the whole stomach and intestines. There was a three-months' fœtus in the passages, and half expelled from the vulva. The other viscera in the chest and abdomen were sound.

The report then concludes with observing that the stomach, intestines, and their contents were removed for analysis,—that arsenic was detected in various parts of the alimentary canal, but particularly in the yellow particles found in the stomach,—and that the results of the inspection and analysis led the reporters to infer, that the deceased had died of poisoning with arsenic.

By Lord Meadowbank. The farm servant Brown had pain in the chest, considerable cough, and difficulty of breathing, consequently an evident tendency to inflammation; and I bled him accordingly. I did not see any symptoms of cholera. I was not told that he had vomiting or purging.

By the Lord Justice Clerk. Q. *Having been informed of the rapid course of the symptoms, and knowing your other patients with cholera did not die till after fourteen days at least, why did you at once conclude that the girl had that disease?* The period was certainly short, but cholera does sometimes prove fatal sooner than I have mentioned, by inducing other diseases,—such as *Intus-susceptio*, (15.) Intus-susceptio would probably have appeared in the dead body. Mrs Smith never said any thing to me about the deceased having had difficulty of breathing.

Dr Johnston, *Physician and Surgeon at Dundee.*

Examination continued by the Lord Advocate, (from p. 450.) I examined the body in company with Drs Ramsay and Taylor. The coffin was raised in my presence. We opened the body, and examined the bowels of the chest and belly on the spot; the rest of the examination could not be conducted in the burying-ground. We therefore removed the stomach and intestines. The stomach was previously tied at each end, then taken out and put into a bladder; the intestines were put into another bladder; and some of the contents which had escaped from the stomach, were put into a bottle. The morbid parts were deposited in my house about dusk; were placed in my consulting-room, of which I carried away the key when I was obliged to go out; and were afterwards taken along with me to my bed-room, when I went to bed. They had been previously sealed up in a wooden box by Dr Ramsay with his own seal. The seal was not broken till Sunday, when he and Dr Taylor were present. The different articles were then taken out, and the half (14) of each separated and tied up in bladders, or sealed in bottles, for the purpose of being sent to Edinburgh. They were all put in an earthen jar, with a metal lid, which was tied over and sealed with Dr Ramsay's seal. I accompanied the person who took them to the mail-coach office, and saw them lodged.

Our experiments were made with the other half of the articles. I tried various tests on the contents of the stomach and intestines. The result was the most perfect conviction that arsenic was in the stomach and bowels;—and that it was sufficient to account for death.

Cross-examined by Mr Jeffrey. I had never before seen a case of poisoning with arsenic. This was the first course of experiments I ever made on the contents of the stomach in such a case. The tests first applied were the *liquid tests*, which are directed to ascertain the presence of arsenic by the appearance of certain precipitates.—These tests were, 1. nitrate of silver, ammonia being previously added to the suspected fluid; 2. sulphate of copper; 3. ammoniuret of copper; 4. nitrate of silver, supercarbonate of potass being previously added to the suspected liquor; 5. sulphuret of potass; 6. lime water, (16.)

By the Lord Justice Clerk. I then applied other tests, for we did not consider the liquid tests, although they conveyed a very strong conviction, as absolutely conclusive. We went on to try the reduction of the suspected matter to the original metal; we mixed a portion of the suspected matter with black flux in a tube, and by heat procured that crust which is considered characteristic of metallic arsenic. The result completely confirmed us in our opinion.

By the Lord Advocate. Another experiment was the passing of sulphuretted-hydrogen gas through the solution of the contents;—a yellow precipitate was formed, (16,) which we afterwards decomposed with black flux, and another crust was procured characteristic of metallic arsenic.

By Mr Jeffrey. We made out our report immediately. We had tried the test of reduction before making out the report. I do not know the quantity of the crust we procured; but it was so thin, that I could not scrape it with a knife from the tube:—there was not a grain, perhaps not the twentieth of a grain.

By the Lord Advocate. I made a similar set of experiments with pure arsenic, which I got from Mr Russell, *(from whose shop the prisoner procured arsenic;)* and the results were analogous. The colours of some of the precipitates were slightly different, which we presumed to arise from animal matter being present in the matter we operated with. I do not know what became of the crusts I got; the last occasion on which I had them, was when showing them in the town-hall; I lost sight of them there. Previous to Wednesday, Dr Ramsay had not tried the test of reduction, as he was unwell. I then gave him some of the material, which I kept for him at his request, in case he wished to try farther tests.

Dr RAMSAY, *Physician in Dundee.*

Examined by the Lord Advocate. I was present in October last, when the body of a female was disinterred, and examined in the church-yard of Murroes, and I signed a report in conjunction with Drs Johnston and Taylor. I conducted the experiments with the fluid tests in their presence. In consequence of being taken ill, I was prevented from attending the reduction-experiments of Drs Johnston and Taylor. But at my request, a portion of the suspected matter was kept for me. I repeated the reduction process, and got a crust by the black flux. I carried this crust to Edinburgh, and it was shown to Dr Christison; who proposed to subject it to a farther test, the conversion of the metal into the oxide: Heat was applied to the fragments of the glass on which the crust was, after they were put into a small tube; crystals of oxide of arsenic were procured. The matter I reduced was the sulphuret made by a stream of sulphuretted-hydrogen sent through the solution of the suspected particles.

I have no doubt of the cause of the deceased's death having been arsenic. The symptoms were such as it produces;—and the morbid appearances also.

Cross-examined by Mr Jeffrey. These were the first experiments I made with arsenic; but I have made many since. The quantity reproduced in the metallic state was very small,—probably not more than the twentieth of a grain. The crystals formed by Dr Christison were probably less. My information as to the effects of the tests for arsenic, is drawn solely from books. *(Drs Mackintosh, Fyfe, and Christison, were here directed by the Lord Advocate to withdraw. I cannot answer therefore for the correctness of what follows of Dr Ramsay's evidence.)*

Re-examined by the Lord Advocate. The evidence I have heard in Court to-day, with regard to the symptoms, confirms my opinion in a considerable degree. But it is rather remarkable that there was no direct evidence of there having been symptoms on Wednesday so violent as those which generally follow the taking of arsenic,—and that she was able on that day to take a pint of milk, and a flour cake to dinner. I do not consider the length of the girl's illness as any objection to her having died of arsenic taken on Tuesday: Death generally follows sooner; but there have been many instances in which life was protracted as long. I am perfectly convinced also, that the suspension of symptoms, though remarkable, was not unprecedented (17,) and might be explained by the state of the stomach at the time the poison was taken. Substances taken might modify its operation in a considerable degree. It was certainly a very unusual occurrence [suspension of the symptoms?] If arsenic was not administered on the Tuesday, I cannot say at what time it was taken subsequently. I certainly think it was most probably taken on Tuesday night.

By the Lord Justice-Clerk. I attribute the suspension of the symptoms to the milk and cake;—but without, of course, deciding what truth there is in the statement regarding the dinner (18.)

By Lord Meadowbank. A person may swallow a great quantity of arsenic without bad effects, if it is vomited soon after; but a small portion may be left, sufficient to light up inflammation, and to prove fatal in two or three days.

By Mr Jeffrey. A very few grains—one or two grains might prove fatal on an empty stomach. My knowledge on that head is drawn from books.

By the Lord Advocate. A mixture of arsenic and water would resemble that described by the witness Norrie. If there was nothing but arsenic in it, the dose must have been great. If there had been so much, the effects must have been almost instantaneous, or very sudden;—vomiting must have occurred soon. But cream of tartar might have been mixed along with the arsenic; and that would lessen in some degree its action, (18.) Evidence of vomiting, or other violent symptoms on Wednesday morning would have left no doubt in my mind that arsenic had been administered.

By Lord Meadowbank. If a person in perfect health was suddenly seized with vomiting and purging, and arsenic was found in the body after death, I would certainly attribute death to the arsenic.

Dr Christison, *Professor of Medical Jurisprudence*, &c. [*Doctors Mackintosh and Fyfe directed to come into Court.*]

Examined by the Lord Advocate. I have frequently had occasion to analyze complex fluids, purposely poisoned with arsenic, and have twice before this case, and once since, detected arsenic in the contents of the stomach of persons poisoned with it. I received from Mr Rolland, in October last, an earthen jar, sealed on the top, and containing several bladders and bottles, both labelled, and the latter sealed. (*Identifies a jar, a bottle, and a seal.*) I drew up first an interim, and then a full report. (*Reads the reports.*)

The second report stated, that the contents of the bladders, consisting of various portions of the stomach and intestines, were examined anatomically,—and the contents of one bottle, namely the contents of the stomach, submitted to chemical analysis. The leading particulars were the following.

All the fragments of the stomach and intestines "were in a state of tolerably good preservation, and, except the great intestines, had a uniformly diffused, light brownish red colour, such as these parts assume, if they have contained much blood in their vessels at the time of death, and have been kept some days." "The cardiac end of the stomach exhibited several large, irregular, black streaks and patches, produced by the extravasation of blood on its villous coat, and in its substance, and accompanied in one or two places with partial removal of that coat.*" A small portion of the stomach preserved apart in a pill-box, had a little, deep excavation,* which was filled with a bright sulphur yellow powder.

The bottle contained three ounces of a thick brownish-red fluid, in part apparently altered blood, together with a sediment consisting of brown flakes, and gray and yellow particles of agglomerated powder. A fine gray powder was scattered in grains over the inner membrane of the stomach and small intestines. The fluid contained oxide of arsenic in solution. The sediment consisted of animal matter, a large proportion of oxide of arsenic, and *probably* a minute quantity of sulphuret of arsenic (19.) The particle imbedded in the ulcer of the stomach, also probably contained some sulphuret of arsenic. The nature of the gray powder on the coats of the stomach and intestines was not distinctly ascertained.

The report ended with the following conclusions :—" As the papers sent me do not mention any of the symptoms under which the person died, or the state of the dead body generally, a decided opinion on the cause of death can hardly be given. But the appearances in the stomach, marked above thus *, and the detection of oxide of arsenic in its contents, are quite adequate to account for death ; and they satisfy me that oxide of arsenic had been introduced during life,—that the person had in all probability lived longer than a day afterwards,—and that it was hardly possible she could ever have recovered from the effects of the poison.

" As to the presence of sulphuret of arsenic in the stomach, which I consider *probable*,—this may have arisen either from the administration of orpiment or of king's yellow, or from the action of antidotes on the oxide, or from the action of a gas sometimes disengaged in the alimentary canal during life, as well as after death." (20.)

On the day before the first time this case was called in court, Dr Ramsay brought to me part of a tube in which was one of the crusts he had procured. I broke into fragments the part of the tube to which the crust was attached, and heating them in another small tube, I procured a very characteristic metallic crust of arsenic; which I afterwards, by again heating the tube, converted into characteristic crystals of oxide of arsenic. The results of this experiment satisfied me that Dr Ramsay had procured an arsenical crust. The tests by which I knew it to be arsenic, were precisely those I employed in my own analysis, except that in my own analysis the arsenic underwent the preparatory process of precipitation with sulphuretted hydrogen. All my own tests were on the principle of reduction, except that I once used the ammoniacal nitrate of silver as a trial-test; and this, too, yielded decided indications, so far as its indications can be decided.

Cross-examined by Mr Jeffrey. I heard the account given by Dr Johnston of the seven liquid tests employed by him and Drs Ramsay and Taylor.—Singly they are not decisive of the presence of arsenic;—but I must observe that taken conjunctly they form satisfactory evidence. Some of the tests mentioned are not correct tests. The sulphate of copper is not a test for arsenic.—The nitrate of silver, with potass previously added to the suspected fluid, is not a very good test; neither is the sulphuret of potass.—But the ammoniuret of copper, the nitrate of silver with ammonia previously added to the suspected fluid, lime water, and sulphuretted-hydrogen are good tests;—sulphuretted-hydrogen is the best.—Any one of them singly would not afford decisive evidence.—They are now less relied on than they once were, and one or two of them are still relied on by some more than they ought to be; but when they agree in their indications they supply perfectly satisfactory evidence; that is, if the witnesses procured with the tests they mention the precipitates which are caused by arsenic, I consider that the liquid tests alone gave decisive proof of the presence of arsenic; at least I do not know any other substance in nature which could produce the same effects on them all. It would require a careful examination of the whole field of chemistry to be enabled to say decidedly that no mixture of substances could have the effects; *but* I am not acquainted with any such mixture. (21.)

I reproduced, at a rough guess, between a quarter of a grain and half a grain by all my reductions, which were three in number. (22.) This quantity, on account of an imperfection in the process of reduction, by which part of the arsenic is retained in the flux, indicates about twice as much arsenic in the contents sent to me. The tube libelled on in the indictment contains crystals of the oxide of arsenic; but they have lost their brilliancy by exposure to the air, and the part of the tube which contained the best crystals is broken in pieces.

I could not determine by simple inspection that the crust brought to me by Dr Ramsay was an arsenical crust; for in a very short time metallic arsenic loses by exposure to the air its characteristic properties, namely, its bright polish and crystalline texture.

I employed acetic acid in one of the processes by which I procured my own crusts.

Re-examined by the Lord Advocate. I am sure that during my processes no arsenic could have been introduced into the matter I operated on; for the only substances added to it were acetic acid and sulphuretted hydrogen, which, by an incidental experiment made at the time, I know did not contain any arsenic (23.)

(Drs Mackintosh and Fyfe directed to withdraw.)

Examination resumed by the Lord Advocate. I have been in Court all day till the middle of Dr Ramsay's evidence:—Taking into account the symptoms, morbid appearances and chemical analysis, I am of opinion that death was caused by poison,—and that the poison was arsenic. The symptoms were all such as arsenic often produces; but other causes might equally produce them. The symptoms I allude to were vomiting, purging, burning pain, thirst, vomiting of liquids, and excessive prostration towards the close.

Q. Was there any thing in the course of the symptoms inconsistent with the deceased having taken arsenic on the Tuesday? I must speak doubtingly on that subject. I think it, although possible, certainly improbable that she took the arsenic, of which she died, so soon as Tuesday. The grounds for my believing it improbable are, that she had not during Tuesday night or Wednesday morning the violent symptoms which a fatal dose of arsenic usually produces soon after being taken; and that she was able on Wednesday to take a hearty dinner. My reasons for thinking it was possible are, in the first place, that I know the symptoms of poisoning with arsenic are liable to very singular varieties,—sometimes there are no violent symptoms at all; and secondly, that I am acquainted by reading with one case, (and I should add but with one,) which, though not similar, was analogous to the present. In that case the poison was taken at eleven in the forenoon, the person took a hearty dinner at two, and the violent symptoms did not begin till seven in the evening, eight hours therefore after the poison was swallowed. It was a case of poisoning with arsenic;—it is related in *Orfila's Toxicologie Générale,* one of the highest authorities in Toxicology.

By Lord Meadowbank. Three days is not an uncommon length of time for a case of poisoning with arsenic to last. People have lived eight days, or several weeks, months, and, it is said even years;—and have died of the same poison after all. The common period is two or three days.

By the Lord Advocate. If vomiting had been proved to have taken place on Wednesday morning, that would do away with one of the circumstances of improbability; but it would still be very remarkable that she should have taken a hearty dinner that day. It is very possible that a small dose was taken on Tuesday night; it would account satisfactorily for the course of the symptoms; but the fatal dose must have been probably taken later.

By the Lord Justice-Clerk. I am aware that the prisoner, and, according to Dr Taylor the deceased herself said the violent symptoms, namely vomiting, purging, &c. began on the Tuesday night. I can hardly conceive it possible that the deceased could have had the violent symptoms usually caused by arsenic during the Tuesday night and the Wednesday morning, more particularly the vomiting, without the farm-servants having been aware of it, when so many of them were so often about her. (24.)

Cross-examination resumed by Mr Jeffrey. Among the numerous cases I have read in books, the smallest fatal dose was sixty grains. It is impossible to say decidedly how small a quantity would prove fatal, as I have not met with a case where less was given for a criminal purpose (25). I mention this to show that there are no facts to found on. But I am of opinion that much less would prove fatal. I say so from knowing the medicinal doses of arsenic, and the effects of an over-dose. The dose usually given is from a sixteenth to a quarter of a grain. On an empty stomach probably a single grain, certainly two grains would be unsafe, and I should think four grains might prove fatal. The stomach is not easily trained to the taking of arsenic, as to the taking of opium.

If arsenic was mixed with water so as to make a "thick, (*in consistence,*) white mixture," the glass must have contained a large quantity, perhaps half an ounce, (26.) I did not understand distinctly from Norrie's description, how much she took in the tea-spoon. *(Here some discussion took place between the Counsel and the Bench, as to the terms of Norrie's evidence.)* But if she took even but a considerable part of a teaspoonful of such a mixture, she must have suffered in consequence.

Examination resumed by the Lord Advocate. If a dose of arsenic was taken on Tuesday night, and was vomited up soon afterwards, that would not account for the course of the symptoms, (27.) In that case life is frequently preserved by the whole contents of the stomach being evacuated. My opinion is, that death was occasioned by a dose taken later than Tuesday; and, as stated in my report, more than a day before death,—probably 36 or 48 hours.

By the Lord Justice-Clerk. If some arsenic was taken on Tuesday night, and some again on Wednesday night or Thursday morning, the course of the symptoms would be accounted for.

By Lord Meadowbank. In the case I have mentioned, in which a hearty dinner was taken three hours after arsenic was swallowed, I do not remember whether the kind of food is noticed; I rather think not. I do not believe much difference as to the time of the symptoms appearing would be caused by a difference in the kind of food taken. No sort of food acts as an antidote; but some will relieve the symptoms rather better than others; liquids will probably do so more than solids, as they will tend more effectually to remove the poison by vomiting.—A full meal taken previously, may even prevent altogether the action of arsenic:—In that case the poison cannot easily spread over the membrane of the stomach, but will collect in a mass in one place; and when the portion which first touches the stomach causes vomiting, the rest will be discharged. There is no doubt at least of the fact, that a full meal taken previously may prevent the action even of a large dose; and such I conceive to be the probable explanation of it.

Different accounts have been given of the taste of arsenic. There have been instances where the taste was acrid: In others it has been described as sweetish; and I know one instance where it had no taste at all. At a judicial examination, a white powder was delivered to me for analysis; a surgeon present asked to see it, and taking it, pronounced it to be, as the people supposed it, magnesia, for he felt no taste. I found, nevertheless, on analyzing it, that it was pure arsenic. (32.)

By the Lord Advocate. I never heard whether the person who tasted it suffered in consequence. Arsenic would not mix so readily with castor-oil as with water; but when mixed it will remain longer suspended.—I have made the experiment. A much less proportion would suffice to make such a menstruum thick; for, in fact, castor-oil is itself thick; the mixture would look whitish, the yellow colour of castor-oil being faint.

By Mr Jeffrey. My reason for thinking that sulphuret of arsenic was probably mixed with the oxide was, that the bright sulphur-yellow colour of the particle adhering to the ulcer of the stomach required to be accounted for; and such experiments as its minute quantity allowed me to make confirmed the notion I formed from the colour. My attention was called particularly to the yellow powder in the memorandum of the Dundee surgeons. Sulphuretted hydrogen does not act at all on dry oxide of arsenic; but the oxide could not lie among the contents of the stomach without some of it being dissolved, and occupying the interstices of the powder. Sulphuretted-hydrogen has not, so far as I know, been found in the stomach of man after death; for it has been very rarely looked for. It has been often found in the stomachs of animals. (28.)

By the Lord Advocate. It has been often found abundantly lower down in the intestines of man. Most animal substances give out sulphuretted hydrogen during their decay. I ought, to remark, however, that in this case, the stomach and intestines, as stated by the Dundee gentlemen and in my report, were in a state of great preservation; and this I consider as perhaps adding in some degree to the evidence of poisoning with arsenic. For although it is not generally thought in this country, it is believed abroad, where such things are more attended to, that arsenic, sometimes at least, preserves the stomach and intestines, and even the whole body, for a great length of time. In consequence of this, arsenic has been detected in the body fourteen months after interment.

I made an experiment in the present case which corresponded with what is now said. After drawing up my report, which was four weeks after death, I kept the stomach and intestines a fortnight longer; and they were equally entire at the end of it. The bladders in which they were kept were in great part rotted away, and covered with maggots; while the stomach and intestines were quite entire, and not a maggot had touched them.

Arsenic seldom causes death by inducing inflammation. It is believed by physiologists that death is occasioned by some part of it being absorbed from the stomach, and conveyed into the general system: a proof of this is, that sometimes no inflammation is caused at all, of which I have myself met with an example.

By Lord Meadowbank. The circumstance which led me to form the opinion expressed in my report, that the deceased must have lived longer than a day, was the appearance of ulceration in the stomach, more particularly of the ulcer in which the yellow particle was imbedded, and which was very deep. This appearance is one which is not produced by arsenic unless the person lives longer than a day. Such ulceration indeed is not very common in poisoning with arsenic at all, as death often occurs too soon for the necessary vital process to be accomplished. While I state that she must have survived a day, I think it probable she survived longer,—thirty-six hours or two days.

When I spoke of antidotes in my report, I alluded to sulphuretted-hydrogen or the alkaline sulphurets, but particularly the former. It is not a proper antidote, but it may diminish the effect;—the sulphuret it might form, though poisonous too, is not so active as the oxide. This is not the case with all the forms of the sulphuret: king's yellow is very active. Its nature has not been thoroughly ascertained; from some experiments of my own, it appears to be a compound of sulphur, arsenic, and lime; it certainly contains lime. It is more easily mixed with water, as it is much lighter than the oxide. By much the greater quantity of the powder in the stomach was oxide, not sulphuret.

By Mr Alison. Sulphuretted-hydrogen gas in the lower part of the intestines may possibly enough have found its way upwards into the stomach.

MEDICAL EVIDENCE FOR THE PRISONER.

DR FYFE, *Lecturer on Chemistry.*

Examined by Mr Jeffrey. I have attended particularly to chemical inquiries. "The liquid tests were by no means sufficient to determine the presence of arsenic." (29.) I heard that part of Dr Christison's report relative to the existence of sulphuret of arsenic in the stomach,—but not his evidence on the subject:—I scarcely think his explanation of the generation of the sulphuret admissible:—I examined a parcel of arsenic sent me by Mr Russell, an apothecary at Dundee;—it did not contain any arsenic; in 400 grains there was not a perceptible quantity. The white arsenic of the shops rarely contains any sulphuret.

Cross-examined by the Lord Advocate. King's yellow is sulphuret of arsenic. Q. *Is there any one substance which would exhibit the same appearances with all the fluid tests used by the Dundee gentlemen as arsenic would?* The liquid tests for arsenic may be all explained away. *That is not an answer to my question. (Question repeated.)* I am not aware of any substance. (29.)

Examined by the Lord Justice Clerk. I think rather that the sulphuret found in the stomach had been swallowed in that state, than that it was formed from the oxide in the stomach, (30.) The white oxide suspended in water is with great difficulty acted on by sulphuretted-hydrogen; but very readily when dissolved. The test by reduction mentioned in Dr Christison's report is perfectly satisfactory.

Dr Mackintosh, *Lecturer on the Practice of Physic, and on Midwifery.*

Examined by Mr Jeffrey. I heard the evidence with regard to the condition of the deceased,—the dose on Tuesday evening,—and the details of the symptoms. When I recollect the dinner she took on Wednesday, I hardly think it possible that arsenic could have been contained in the mixture taken on Tuesday. If the mixture owed its whiteness and consistence to arsenic, it must have been a dreadful dose; and it is scarcely possible but that violent symptoms must have followed speedily (31.) Norrie, if she partook of such a mixture, would have felt a very acrid taste, if it had been arsenic (32;) and as she did not spit it out, she must have had perceptible symptoms. The sickness she felt on Wednesday morning is a very common symptom of pregnancy in the third month; I have frequently seen such symptoms far more severe in pregnant females at that stage (33.) The symptoms of cholera and of poisoning with arsenic are the same. Cholera is very common in this country after hot summers. The duration in fatal cases of cholera is various; it is not an uncommon thing for cholera to prove fatal even in this country in two or three days; I have myself seen a person die of it in twelve hours in this country; I have seen it both here and in foreign countries (34.)

" Barring the evidence of arsenic, I do not consider the morbid appearances described by the Dundee doctors as worth one farthing; because every medical man knows the *post mortem* appearances lose their character in a few days." (35.) I have been much accustomed to the examination of dead bodies;—I would not take it upon me to pronounce as to the existence of morbid appearances in ten days; much less after three weeks. Even in three days they are often doubtful. The other day I was appealed to as to the existence of the signs of inflammation in the stomach after forty-eight hours had elapsed since death; and I could not say whether the appearances arose from inflammation or from *postmortem* changes.—The blackness observed on the body in this case forms no ground for inferring poison: It is very common as a consequence of diseases of the lungs particularly.

Cross-examined by the Lord Advocate. Cholera could not prove fatal as cholera so late as fourteen days;—death is then owing to some other disease lighted up in the system. It is common (34, *end of the note*) for cholera even in this country to prove fatal in two or three days, if neglected;—the patient who died of it in twelve hours I saw expire with my own eyes.

I have not paid much attention to that part of medical jurisprudence which treats of the tests for arsenic; I am not well enough acquainted with them to speak of their validity. Assuming the fact of the detection of arsenic, and taking along with it the symptoms, it is my opinion the deceased died of poisoning with arsenic.

NOTES AND COMMENTARIES.

1. The evidence could be founded only on what we observed. Under the circumstances, therefore, it could not have been more decided. A knowledge of the state of mind subsequent to his former fits would have enabled the witnesses to have sworn more decidedly.

2. When I left the court an hour after giving my evidence, I found the juryman had not recovered his memory. I mention this, because some persons, judging, I presume, not so much from what was the fact, as from the important consequences of our evidence in interrupting the legal proceedings, were disposed to think Dr Mackintosh and myself hasty in our opinion.

3. This decision formed one of the remarkable features of the trial. The present was the first occasion on which the Scottish Criminal Court had to determine the question of the legality of resuming a trial, when it had been cut short by the illness of a juryman.

4. The surgeon who gave the prisoner the poison, instructed her to mix it with oatmeal and drippings of meat to give it a smell. In two packets of the stuff found in the loft, which were submitted to me for analysis, and which contained one of them 5.51 grains, and the other 0.72 of arsenic, there was not any greasy matter.

5. Mr Alexander's statement cannot be admitted as consistent with fact or medical doctrine. Every one who has had experience on the subject knows, that the hysteric temperament is often united with much strength of mind; by reason of which a female in trying circumstances may both show perfect self-possession in the intervals of frequently-recurring fits, and recover it suddenly during the imperfect stupor which occasionally remains for some hours after them. I have myself known instances of the kind; and if others were wanting, the case of Mrs Smith, so fully established by the evidence in the text, would substantiate the fact, even though general principles were at variance with it.

6, 6. This particular, coupled with the subsequent statement of Mr Crichton, that convulsions accompanied the stupor, proves that the prisoner did not feign the paroxysm observed by the latter gentleman. The contrary state of the pulse, however, would by no means prove the reverse. The pulse can never be slow in feigned convulsions; but it may be hurried in the hysteric fit.

7. This notion was a more important one than the court could

have been aware of. The stupor which succeeds an epileptic fit, is, I believe, not susceptible of an intermission under any circumstances.

8. My own experience does not by any means accord with that of Mr Crichton. His opinion applies generally. But I have often, nevertheless, seen a hysteric patient after a violent paroxysm, both of the convulsive and of the comatose form, recover her senses and self-possession completely in two minutes.

9. I have inserted this account of what is strictly moral evidence, because it forms a good example to medical inspectors and witnesses of discreet conduct in circumstances of peculiar delicacy.

10. After what has been said in note 5, it is almost unnecessary to add, that in a medical point of view the evidence from the prisoner's declarations was not weakened at all in credibility by the previous attacks of hysteria.

11. The admissibility of medical witnesses to be present at the proceedings in trials previous to the delivery of the medical evidence has been conceded by pretty long usage. But their admissibility to hear one another's professional examination is a particular in the Scottish law of evidence, which has not yet been determined by practice, and, so far as I have been able to learn, is nowhere touched on by law writers. The following instances, occurring in the course of a single year, will show how loose the practice now is on the subject. At the trial of Kennoway last winter for parricide, Drs Scott and Graham of Dalkeith, Professor Alison and myself, were examined in the order now mentioned; and none of us were allowed to be in court at any part of the evidence of our brethren who were examined before us. On the trial of Clark in Perth for infanticide last autumn, Drs Malcolm and Stewart of that city, Dr Johnston of Dundee, and myself were present during the whole examinations of one another; and this was at the suggestion of the Bench. At the present trial, the medical witnesses were allowed to hear whatever each had to state as to the facts of the case; but when any of them had to give his professional opinion, those who were to succeed him were withdrawn.

The system enforced in the case of Kennoway is evidently a bad one: it is impossible for medical men to take the facts of the case except directly from the witnesses who furnish them either in writing or *vivâ voce*. The system adopted in the trial of Mrs Smith is as evidently the best of the three; but the same principle which dictates it, should admit the witnesses to hear not only the facts of the case, but likewise the facts in medicine that have a relation to it. It is besides liable to several inconveniences. In the first place, it is very difficult to preserve the system from violation: accordingly, Drs Mackintosh and Fyfe were inadvertently allowed to be present while I gave my opinion on the validity of the fluid-tests. But, in the second place, it does not provide sufficiently for the developement of the facts of the case on which the subsequent witnesses are to found their opinions. A very striking example of this occurred when the present trial came on, and was interrupted.

The opinion I delivered in the sequel on the validity of the fluid-tests for arsenic is a common-sense view of them, which every chemist must take when his attention is properly turned towards it. Now, when the case was first tried, the only facts drawn from the Dundee physicians regarding the fluid-tests were the effects of nitrate of silver, sulphate of copper, ammoniacal nitrate of silver, and ammoniacal sulphate of copper. Of these the two first are not tests for arsenic, and the effects of the two last may be produced very nearly by fluids which do not contain that poison. Porter gives with the silver test a grayish-yellow, and with the copper test a leek-green precipitate. *(See my paper in this Journal, July* 1824.*)* Consequently my opinion from the facts on record, must have been that the witnesses did not get satisfactory evidence from the fluid-tests. But farther, the circumstance that Dr Ramsay brought one of his crusts was not elicited either: and he and his companions were not asked to describe the characters of their crusts. Consequently it would have been impossible for me to give an opinion whether the crusts really were arsenical,—a point upon which I have known the inexperienced err. *By far the best method of bringing out the medical facts of the case,—the only one indeed which will effect this object satisfactorily,—is to make it a rule for the medical reporters to state them all without exception in their reports.* Their opinions should be stated separately from the facts, but of course should refer to them. I am convinced that such a system would make the medical evidence much more intelligible to unprofessional persons, and lessen the time which it usually occupies; while it would enable the other medical witnesses to form their opinions under a complete view of the case, and, what is of equal consequence, dispassionately. I could enlarge much on this important subject; but the necessary limits of my paper must prevent me.

12. The accuracy of this statement may be called in question. The pain in violent cases of cholera even in this country is often a burning pain, and in the cholera of the East Indies is almost always so.

13. This striking appearance of corrugation and apparent searing of the coats, not perhaps a very common consequence of poisoning with arsenic, has nevertheless been observed before. (Pyl's *Aufsätze und Beobachtungen* I. 58; Metzger, in Schlegel's *Collectio Opusculorum,* &c. IV. 23; Remer, in his Edition of Metzger's *System der Gerichtlichen Arzneikunde,* 258.)

14, 14. In medico-legal inspections the fluids found in the body, particularly in the stomach, ought to be measured not with the eye, but with a graduated vessel. It is always satisfactory, though by no means always necessary, to be able to say how much poison was found in the stomach. In the present case this was impossible. Three ounces were sent to me, not five or six, as the evidence of the Dundee gentlemen would imply.

15. See note 34 for the real state of the fact on this particular. Intus-susceptio was out of the question, because not only peculiar

morbid appearances would have been found in the dead body, but likewise there would not have been purging.

16, 16. For the effects of these tests see note 21; and for their validity see my evidence, page 458.

17. Dr Ramsay is quite correct. Suspension of the violent symptoms for half an hour, or a few hours on the second day, and the substitution of a state of calm, or of imperfect stupor is not uncommon. But the question here certainly did not regard the possibility of suspension of the symptoms, but the possibility of violent symptoms not appearing at all for a day or more after a fatal dose was taken. (See note 24.)

18, 18. These statements are not supported by any facts in toxicology with which I am acquainted.

19. The process by which the arsenic was detected was the same as that described by me in the Edinburgh Medico-Chirurgical Transactions, Vol. II. and in the Edinburgh Medical and Surgical Journal for July 1824. It has since received the approval of Professor Berzelius in his Yearly Retrospect of Chemistry for 1825; and he has added another step for rendering it more delicate. The existence of a small quantity of sulphuret of arsenic was rendered probable by the intense sulphur-yellow colour of the imbedded particle, and the sublimation from it of a minute yellow crust, —which, however though evident, was too minute for farther examination.

20. The reader will remark a striking correspondence in the description of the appearances between the Dundee and Edinburgh reports. This is important in regard to the subsequent evidence of Dr Mackintosh. It is necessary to add, that my report was delivered before I saw that of the Dundee gentlemen, and before I knew anything of the circumstances of the case, farther than that the body had been examined three weeks after death, and that the Dundee gentlemen believed they had found arsenic in it.

21. I am indebted to Dr Ramsay for the following account of the effects of the liquid reagents. They were applied to the solution of the sediment found in the stomach, to the fluid contents in the stomach after boiling and filtration, to the fluid contents of the duodenum treated in like manner, to the liquor found in the cœcum, and to the washings of the small intestines. Their effects on the first are amply sufficient. Ammoniacal nitrate of silver caused a bright yellow cloud;—the sulphate of copper a faint-green *;—the ammoniacal sulphate of copper a light olive-green;—the nitrate of silver (carbonate of potass being previously added to the suspected fluid) deep yellowish-brown passing to black;—the sulphuret of potass very bright yellow;—lime water whitish;—sulphuretted hydrogen bright yellow, but rather faint.

The effect of the sulphate of copper in causing a green precipitate, which it does not do with arsenic unless an alkali is present,

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* Heightened by the addition of carbonate of potass; but this was not part of the evidence.

must have been owing to salts in the animal matter present. I have found that most animal fluids acquire a green colour with the ammoniacal sulphate. The brown tint of the precipitate with the fourth test was probably owing to an excess of alkali, by which the oxide of silver was mingled with the arsenite. The faintness of the precipitate with sulphuretted hydrogen, which acted with great force in my hands, must have arisen either from acetic acid not having been added previously, or to the excess of gas not having been subsequently driven off by heat.

22. The reductions were four in number.

23. This answer met an objection which might have been drawn from a statement by Berzelius in his Yearly Retrospect for 1825,—that sulphuretted-hydrogen, when prepared by sulphuric acid made from *pyritic* sulphur, contains arseniuretted-hydrogen. All the sulphur, however, used in this country by chemical manufacturers (as I am informed by a gentleman connected with the chief London house that imports sulphur into this country) is *volcanic* sulphur;—in which, according to Berzelius, there is not any arsenic.

24. It is often very difficult for the medical witness to avoid interfering with the moral evidence; and this is a good example. The two accounts were evidently quite incompatible with one another; and of course no one could lay down to the witness which account he was to take. Still, however, a choice was to be made. Under the circumstances, therefore, I do not see how it was possible to have acted better, than by adopting the facts which were directly witnessed, in preference to those which were hearsay,—which were ascertained by the physician when he was quite unaware of the importance of accuracy in the dates,—and with which the former, according to every medical man's experience, were almost or absolutely incompatible. That the deceased should have had the violent symptoms, speedily and universally caused by arsenic in the cases in which it is taken in a large and fatal dose, *and does not cause death in a few hours,*—and that, nevertheless, the patient should not disturb the sleep of a bed-fellow throughout the whole night, or be seen to vomit or purge during any one of the numerous visits which she received on Wednesday,—nay, that she should be able to take a tolerable dinner on that day, and without vomiting it,—is, if not impossible, at least very highly improbable. These were the grounds upon which my opinion rested.

25. I should have added in a single dose. Less has been given in a dose frequently repeated.

26. This is one of the numerous instances in which the medical witness is very apt to give a precise answer to a vague question. A *thick* mixture may imply various degrees of consistence. In the case of arsenic, the consistence must be great to make a mixture at all, for with a small proportion of arsenic the greater part falls at once to the bottom, leaving a superincumbent fluid, *thick* in colour indeed, but not in consistence. If the witness Norrie was correct in saying that the deceased *drank* the mixture, and the menstruum was water, the proportion of arsenic, if it was

really present, must have been small. My evidence admits the perfect possibility of such a dose having been taken on the Tuesday; but it denies the probability of this, if taken, having been the sole or fatal dose,—the course of the symptoms being, so far as I may judge from the perusal of innumerable cases, inconsistent with that supposition. In concluding this note, I must remark that, as very often happens, the importance of the precise terms of the description of the draught did not appear till after the witness who gave it had finished her evidence; and that consequently, knowing how apt every person is to vary the terms of a description slightly, when not at the time aware of their importance, it is impossible to attach any weight to those used by Norrie.

27. I should have added, without another having been taken afterwards. But that must have been understood from the tenor, of my previous evidence. My opinion, taken from the various parts of my evidence, bears, that the violent symptoms of Thursday and Friday, as well as the fatal issue, might by possibility have arisen from a single dose taken on Tuesday night;—that this was improbable, however, considering the slight symptoms produced during the first 24 hours, and the almost total absence of symptoms for the first eight hours;—but that the course of the symptoms was perfectly consistent with the idea of either a small, or a partly-vomited large dose having been taken on Tuesday, and the fatal dose on Wednesday night or Thursday morning. The only grounds for this opinion, which are not mentioned in the text, are that the total absence of violent symptoms alluded to in my evidence, as occasionally happening in cases of poisoning with arsenic, occurs only when death ensues in a few hours; and that this state, succeeded in twenty-four hours by the usual violent symptoms, without more poison being taken, forms such a history of a case as can nowhere, to my knowledge, be found in authors.

28. Namely in the ox, by Tiedemann and Gmelin (*Die Verdauung nach Versuchen*;)—in the sheep, by the same;—in the sheep by Lemeyron and Fremis (*Bulletin de Pharmacie*, 1807, p. 358;)—in the sheep, by Leuret and Lassaigne (*Expériences sur la Digestion*, p. 125;)—and in the dog after feeding on meat, by the same (p. 125.)

29. These are Dr Fyfe's very words. For the correctness of his opinion I refer,—not only to the particulars of mine, but likewise to his own cross-examination. Few of those who have made the tests of arsenic a subject of study, have taken the common sense view of their effects conjunctly. Separately "they may be all explained away," as Dr Fyfe states; not so conjunctly. The reader will remark that the difference between him and me was not in the chemical facts, but in the force of the conclusion to be drawn from them.

30. The statements made in my own evidence will throw some doubt upon Dr Fyfe's opinion. A full report was drawn up by me on this subject for the instruction of the Crown Counsel; but as no part of it was made use of in my examination, I did not feel at all disposed to volunteer any evidence from it. That the change of

colour was effected in the stomach I was led to believe from the yellow particles being gray in the interior, and from the easy explanation which the presence of sulphuretted-hydrogen in the stomach would give of the colour they possessed. But I stated distinctly, that I considered the existence of sulphuret of arsenic to be merely probable; and perhaps I ought to have expressed my doubts more strongly than I did,—not on account of Dr Fyfe's objection,—but on account of my experiments really not supplying good proof of the presence of the sulphuret. The question between Dr Fyfe and me was after all a very unimportant one, as the prisoner had king's yellow in her possession.

31. Dr Mackintosh seems not to have known that persons have died without pain, vomiting, or purging; but this absence of the usual symptoms occurs only when death ensues in a few hours. See the Edinburgh Medico-Chirurgical Transactions, II. 304.

32. See my evidence. My limits do not permit me to enlarge on the subject. But it is certainly very curious to read and hear the many discrepant accounts given by authors and patients of the taste of arsenic. Since the trial I have learned another instance in which the person felt no taste. Whatever may be its real taste, there is no doubt that it has often been tasted and swallowed too without any taste being perceived at all. The reason is obvious. Every substance must be dissolved before it impresses the organs of taste. But arsenic is dissolved with great difficulty at the temperature of the body. Consequently, whatever its taste may be, arsenic may often be swallowed without its impressing the organs of taste.

33. Does the acute burning pain also occur in such cases?

34. This is a valuable fact. The question has been put upon trials, (*Trial of Mr Donnal in* 1817, *see Smith on Medical Evidence*, p. 212); but no witness has hitherto been able to say, that he knew of an actual case fatal in this country within two days. I may add that Dr Duncan senior informs me, a gentleman of his acquaintance was attacked by cholera in the Edinburgh theatre, and died next forenoon. I have also heard of a case that proved fatal in seven hours; but the patient was not seen by a medical man. Drs Abercrombie, Duncan junior, Home, Alison, and many others of my acquaintance, never saw a case fatal in two days;—so that Dr Mackintosh's opinion as to the commonness of such an event appears more than problematical. The terms *common, very common, uncommon,* are often vaguely used by medical witnesses.

35. As this remark implies a severe and incorrect censure on the evidence of all the medical witnesses for the crown, I cannot allow it to pass without criticism. The reader will remark that in a mere matter of fact and observation, it was stated in the reports and deposed in Court, that the stomach and intestines when examined at Dundee were in a state of "wonderful preservation," that when examined at Edinburgh they were in a state of "tolerably good preservation," and that they continued unchanged after the lapse of a fortnight. Add to this the occasional preservative effect of arsenic as attested in my evidence; and the opinion of a medical man,—as

to the impossibility of observing morbid appearances in the special case, on which alone a relevant opinion could be given, and on which alone Dr Mackintosh was understood to speak,—must have rested either on the denial of the powers of accurate observation in the reporters, or on an opinion that morbid appearances cannot be traced when the parts are in a state of preservation.

If the latter notion formed the ground of Dr Mackintosh's statement, I fear it will be impossible to convince him of the reverse. If, on the other hand, it was on the inaccurate powers of observation of the Dundee gentlemen and myself, in contradistinction to the accuracy of one who "has been much accustomed to pathological investigations," that his opinion rested, I think it may be possible to satisfy my friend under this view of the case. If he did not attach any weight to the pointed terms in which both reports spoke of the state of preservation of the alimentary canal, he might at least have given me credit for not being likely to fall into so unpardonable a blunder as the confounding pseudo-morbid with morbid appearances; for he must be aware, that the effects of time and decay on morbid appearances form an important topic in medical jurisprudence, of which no professor of that science can be ignorant. I shall say nothing of my experience. It is far better that the facts of the question speak for their own accuracy, when they really do not require the authority of a name to stamp them accurate; and therefore I beg to subjoin the following extracts from the original notes which formed the basis of my report.

October 5th. * * "Except that the mere surface of the villous coat was softened, they (the stomach and intestines) were in a state of good preservation, and not smelling very distinctly like putrid intestine." * * * "On a portion (of the stomach) equal in size to two or three half crowns, there are several irregular coalescing streaks and patches of a deep black colour, which appear to be produced by blood mixed with the dissolved part of the villous coat, and likewise extravasated and incorporated in its substance. Here in one or two places the villous coat has evidently been destroyed; but over most of the patches this appearance is deceptive, and arises from elevation of their margins, the villous coat being actually continuous and, except merely on its surface, very firm."

It must be apparent to every reader, that this description was drawn up under the guidance of an attention pointedly excited by the characteristic appearances of violent irritation after so long an interval as four weeks after death.

If I understood correctly the tenor of a conversation I had with Dr Mackintosh immediately after his evidence was concluded, the statement which has led to the present comment was intended merely as a *general* opinion as to the difficulty of distinguishing morbid appearances after the lapse of time. If so, his words bore not that meaning. And if they had it would have been both an irrelevant and an immaterial meaning; for I dare say nobody in court needed to be informed that morbid appearances must fall away with the body into corruption, and that the decay is often rapid.

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END OF VOLUME TWENTY-SEVENTH.

No XCII. will be published on the 1st of July.

DEC 4 1916

EDINBURGH:
PRINTED BY JOHN STARK.

A 405423 DUPL

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